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**A N N A L S**  
**OF THE**  
**LYCEUM OF NATURAL HISTORY.**



3

# ANNALS

OF THE

## LYCEUM OF NATURAL HISTORY

OF

NEW YORK.

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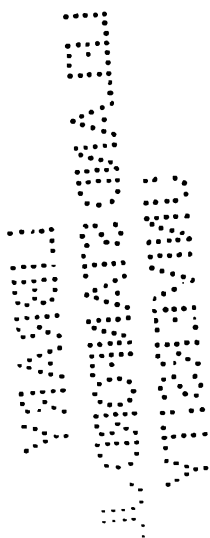
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1852.



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# OFFICERS OF THE LYCEUM.

1852.

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## *Vice Presidents.*

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## *Treasurer.*

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## *Librarian.*

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O. W. GIBBS, M.D.

GEO. N. LAWRENCE.

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**ABRAHAM HALSEY.**

**GEO. N. LAWRENCE.**

**J. CARSON BREVOORT.**

**JOHN G. ADAMS, M.D.**



# LIST OF MEMBERS.

## Resident Members.

[Those marked with an \* are deceased.]

	Elected		Elected
Adams, John G., M.D.,	1837	*Dana, James F.,	1826
*Akerley, Samuel, M.D.,	1817	Davis, Charles H.,	1836
*Allen, Rev. Ira W.,	1846	*De Kay, James E., M.D.,	1819
Anthon, John,	1817	Delafield, Joseph,	1823
Anthon, Wm. H.,	1845	*De Rham, H. C.,	1836
Archibald, Andrew,	1852	Dinwiddie, Robert,	1846
		Dodge, Jonathan, M.D.,	1836
*Barnes, Daniel H.,	1819	Dorr, George B.,	1835
*Baudoine, E. F.,	1817	Draper, Prof. John W.,	1839
Beadle, Edward L., M.D.,	1835	Dupuy, Eugene,	1846
Bedford, Prof. G. S., M.D.,	1845	*Dyckman, Jacob,	1817
Bell, John G.,	1837		
Blunt, Edmund,	1845	Edwards, Wm. H.,	1847
*Boyd, G. W.,	1828	*Endicott, Geo.,	1845
Bradford, Hezekiah,	1848		
Bradhurst, J. M.,	1833	Feuchtwanger, Lewis,	1830
Brevoort, J. Carson,	1840	Field, Hickson W.,	1830
Brinckerhoff, I., M.D., U.S.N.,	1828	Fleming, Augustus,	1829
Brooks, Orville, M.D.,	1829	*Francis, Henry M.,	1829
Brownne, Robt. H.,	1833	Francis, John W., M.D.,	1817
Budd, Bern W., M.D.,	1839		
Carey, Sam. T.,	1831	*Gahn, Henry,	1817
Carey, Wm. F.,	1835	Gallatin, Albert R.,	1840
Cary, Henry,	1828	Gescheidt, Anthony, M.D.,	1846
*Carter, Nath. H.,	1824	*Gibbs, George,	1822
*Chilton, George,	1827	Gibbs, Prof. O. Wolcott,	1840
*Clements, James,	1817	Giraud, Jun., Jacob P.,	1840
*Coles, Benj. U.,	1817	Glover, John,	1830
Congdon, Charles,	1846	Goldsmith, Middleton, M.D.,	1840
Cotheal, Alex. J.,	1847	Graves, Edward A.,	1823



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	Elected		Elected
Green, Isaac, M.D.,	1840	McCracken, John L. H.,	1830
Guillauden, Emile,	1846	*Mitchill, Samuel L., M.D.,	1817
		*Moore, B.,	1838
Haines, Wm. A.,	1849	Moore, Prof. Nathaniel F.,	1827
Hall, J. Prescott,	1847	Moore, William,	1824
Halsey, Abraham,	1818	*Morton, Francis,	1817
Hamilton, John C.,	1829	Mott, Prof. Valentine,	1845
*Handy C. O.,	1840		
Harria, Edward,	1834	Ogden, David S.,	1849
Hicks, Henry W.,	1835	Olmstead, Rev. Lemuel G.,	1846
Hiscox, Gardner D.,	1848		
Hodge, James T.,	1844	Paine, Prof. Martyn,	1824
Holton, David P., M.D.,	1840	Parish, Daniel,	1836
Holton, Prof. Isaac F.,	1840	Parish, Henry,	1829
*Hone, John,	1826	*Pattison, Prof. G. P.,	1845
Hone, John P.,	1836	Paulding, Nathaniel,	1817
*Hosack, J. E. S.,	1823	*Peers, Rev. B. O.,	1840
Hoyt, Henry,	1833	Perry, Matthew C., U. S. N.,	1823
Hull, O.,	1824	Prime, Edward,	1835
		Prime, Frederick,	1832
*Irving, William S.,	1817	Prime, Rufus,	1833
*Jay, Peter A.,	1839		
Jay, John,	1836	Ray, Robert,	1835
Johanson, W. T.,	1842	Redfield, William C.	1837
Jones, Samuel T.,	1848	Redfield, John H.	1836
		*Reed, Luman,	1834
*Kearney, R., M.D.,	1847	*Revere, Prof. John,	1827
Kellogg, Orson,	1849	Russell, Archibald,	1836
Kemble, William,	1824		
*King, Frederick G.,	1824	*Schaeffer, Rev. F. C.,	1818
*Kissam, B. P., M.D.,	1817	Schapps, Cornelius, M.D.,	1849
		Seeley Wm. A.	1845
Lawrence, George N.,	1845	*Sherwood, Gilbert,	1837
Le Roy, Peter V.,	1848	Sloat, J. B., U.S.N.,	1827
Loines, John,	1846	Smith, J. Augustine, M.D.,	1826
Loomis, Prof. Elias,	1838	Smith, J. Bryant,	1852
*Lowndes, O. M.,	1829	Smith, James Elnathan,	1848
Ludlow, T. W.,	1824	Smith, Thos. L., M.D., U.S.N.,	1849
Mason, Prof. Cyrus,	1848	Stuart, Robert L.,	1847
		Swift, William, M.D., U.S.N.,	1817

## HONORARY MEMBERS.

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	Elected		Elected
Tellkampff, Theod., M.D.,	1847	Verplanck, Gulian C.,	1818
Thompson, Martin E.,	1830	Verplanck, S.,	1824
Thompson, Aaron R.,	1830		
*Throop, Enos T.,	1837	Wagstaff, Alfred,	1824
Torrey, Prof. John,	1817	*Ward, James F.,	1836
Tracy, Samuel F.,	1852	*Watkins, J. S.,	1817
Trudeau, J., M.D.,	1846	*Watts, John,	1818
		Wheatley, Charles M.,	1840
		*Wilkena, J. F.,	1831
Van Nostrand, Henry D.,	1850		
Van Rensselaer, Alex., M.D.,	1849		
Van Rensselaer, J., M.D.,	1820	Zabriskie, Martin,	1834

### Honorary Members.

**[Restricted to forty.]**

(Those marked with an \* are deceased.)

Names and Residences.	Elected
*Abades, Pedro ; Peru,	1820.
*Agardh, Prof. C. A. ; Lund, Sweden,	1820.
*Agassiz, Prof. Louis ; Cambridge, Mass.,	1837.
Arnott, G. A. Walker ; Arlay, Scotland,	1837.
*Bang, Hoffman ; Odense, Denmark,	1817.
*Berzelius, Prof. J. J. ; Stockholm, Sweden,	1826.
Bigelow, Prof. Jacob ; Boston, Mass.,	1817.
Bivona, Baron ; Palermo, Sicily,	1817.
Brown, Robert ; London,	1817.
Buckland, Prof. William ; Oxford, Eng.,	1828.
*Castrom, Prof. H. ; Stockholm, Swed.,	1817.
Clark, Bracy ; London,	1817.
Cleaveland, Prof. Parker ; Brunswick, Me.,	1819.
*Clinton, De Witt ; New York,	1817.
Cloquet, Jules, M.D. ; Paris,	1819.
*Collins, Zaccheus ; Philadelphia, Pa.,	1817.
*Correa de Serra, Joseph ; Portugal,	1817.
*Cuvier, Baron G. ; Paris,	1823.
Dana, James D. ; New Haven, Conn.,	1852.
*De Candolle, Prof. Aug. Pyr. ; Geneva, Switz.,	1817.
De Candolle, Prof. Alph. ; " "	1852.
*Dejean, Lieut-General, Count ; Paris,	1830.
De La Beche, Henry ; London,	1837.

Names and Residences.	Elected
Deshayes, G. P. ; Paris, . . . . .	1852.
Dillwyn, Lewis Weston ; Swansea, Wales, . . . . .	1826.
Edwards, Prof. H. Milne ; Paris, . . . . .	1852.
*Elliot, Stephen ; Charleston, S. C., . . . . .	1817.
*Ferussac, Baron D. de Paris, . . . . .	1826.
Fischer, Prof. G. ; Moscow, Russ., . . . . .	1852.
Gmelin, Prof. Tubingen, . . . . .	1836.
Gray, Prof. Asa ; Cambridge, Mass., . . . . .	1852.
Greville, Robt. Kaye ; Edinburgh, Scot., . . . . .	1823.
Hall, James ; Albany, N. Y., . . . . .	1852.
Harvey, Prof. Wm. H. ; Dublin, Ireland, . . . . .	1852.
*Haüy, Abbé ; Paris, . . . . .	1817.
Holbrook, John Edward ; Charleston, S. C., . . . . .	1852.
Hooker, Sir W. Jackson ; Glasgow, Scot., . . . . .	1823.
*Hosack, David, M.D. ; New York, . . . . .	1818.
Humboldt, Baron Alex. de ; Berlin, Prussia, . . . . .	1826.
*Jefferson, Thomas ; Virginia, . . . . .	1817.
*Knapp, G. C. Germany, . . . . .	1817.
*Lambert, Aylmer Bourke ; London, . . . . .	1817.
*Lamoureux, Prof. J. V. F. ; Caen, France, . . . . .	1823.
*Latreille, P. A. Paris, . . . . .	1826.
Lehmann, Prof. J. G. C. ; Hamburg, Ger., . . . . .	1823. •
*Lesueur, C. A. ; Paris, . . . . .	1841.
Lindley, Prof. John ; London, . . . . .	1830.
Long, Col. Stephen H. ; U. S. A., . . . . .	1817.
Lyell, Charles ; London, . . . . .	1836.
*Macneven, Prof. Wm. J. ; New York, . . . . .	1817.
*McClure, Wm. ; Philadelphia, Pa., . . . . .	1821.
*Monroe, James ; Virguia, . . . . .	1817.
*Munos, Bartolomi de ; Buenos Ayres, . . . . .	1823.
Murchison, Sir R. I. ; London, . . . . .	1836.
Nees Von Esenbeck, Prof. C. G. ; Breslau, Pruss., . . . . .	1836.
Nuttall, Thomas London, . . . . .	1822.
*Peale, C. W. Philadelphia, Pa., . . . . .	1817.
*Savi, Prof. Gaetano. Pisa, Italy, . . . . .	1817.
*Schweinitz, Rev. Lewis D. de ; Bethlehem, Pa., . . . . .	1823.
Silliman, Prof. B. New Haven, Conn., . . . . .	1819.
*Smith, Sir James Edward ; London, . . . . .	1817.
Somme, Prof. ; Antwerp, . . . . .	1817.
*Sprengel, Prof. Kurt ; Halle, Germany, . . . . .	1820.
Strongonoff, Count : St. Petersburg, Russ., . . . . .	1836.
Swift, General Joseph G. ; New York, . . . . .	1817.

# **CORRESPONDING MEMBERS.**

**xiii**

Names and Residences.	Elected
Thomson, Prof. Thomas; Glasgow, Scot., . . . .	1828.
*Trinius, Dr. Charles B.; St. Petersburg, Russ., . . . .	1836.
Valenciennes, Achille; Paris, . . . .	1837.
*Van Rensselaer, Stephen; Albany, N. Y., . . . .	1823.
Verneuil, Edward de; Paris, . . . .	1846.
Von Martius, Prof. C. F. P.; Munich, Germany, . . . .	1841.

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## **Corresponding Members.**

(Those marked with an \* are deceased.)

(Those marked † were elected as Resident Members, but have become Corresponding Members by change of residence.)

Names and Residences.	Elected
Abert, Col. J. J.; U. S. A., . . . .	1825.
Adams, Prof. C. B.; Amherst, Mass., . . . .	1849.
*Adee, Augustus, M.D.; U. S. N., . . . .	1833.
Alger, Francis; Boston, Mass., . . . .	1834.
Allen, John H.; Oxford, Md., . . . .	1847.
Allen, Jonathan A., M.D.; Middlebury, Vt., . . . .	1825.
†Allen, Theodore, . . . .	1834.
Atwater, Caleb; Circleville, Ohio, . . . .	1817.
*Audouin, Victor; Paris, France, . . . .	1826.
*Audubon, John James; Louisiana, . . . .	1824.
 Bachman, Rev. John; Charleston, S. C., . . . .	 1834.
Baird, Spencer F.; Washington, D. C., . . . .	1846.
*Barabino, Joseph; New Orleans, Louis., . . . .	1830.
Barclay, Robert; England, . . . .	1830.
Barlow, Saml. W., M.D.; Granville, Mass., . . . .	1824.
Bass, Seth; Boston, Mass., . . . .	1824.
Beck, Prof. Lewis C.; Albany, N. Y., . . . .	1817.
*Beck, Prof. T. Romeyn; Albany, N. Y., . . . .	1817.
Bell, James H.; Sandusky, Ohio, . . . .	1836.
†Bell, John, . . . .	1825.
Bennett, Rev. Cephas; Tavoy, Birmah, . . . .	1847.
*Bigsby, John J., M.D.; England, . . . .	1824.
*Binney, Amos, M.D.; Boston, Mass., . . . .	1846.
Boisduval, J. M.; Paris, France, . . . .	1830.
Boissier, E.; Geneva, Switz., . . . .	1852.
Bonaparte, Charles L.; Rome, Italy, . . . .	1824.

Names and Residences.	Elected
Boott, Francis, M.D.; London, England, . . . .	1837.
Bouillet, J. B.; Auvergne, France, . . . .	1836.
Brace, John P.; Litchfield, Conn., . . . .	1817.
*Bradbury, John; England, . . . .	1817.
Brainard, Prof. John; Cleveland, Ohio, . . . .	1852.
Breithaupt, Prof. Aug.; Freyberg, . . . .	1830.
†Brinckerhoff, P. R., . . . .	1839.
Brockett, L. P., M.D.; Hartford, Conn., . . . .	1847.
Brongniart, Adolphe; Paris, France, . . . .	1820.
†Bronson, Oliver, . . . .	1818.
Buckley, Saml. B.; New York, . . . .	1843.
*Burrill, Eli; Troy, New York, . . . .	1818.
*Caldes, Don Mariano; Mexico, . . . .	1825.
†Cary, Thomas G., . . . .	1829.
Cassin, John, M.D.; Philadelphia, Pa., . . . .	1847.
Castelnau, Count; Paris, France, . . . .	1839.
†Catlin, George, . . . .	1825.
Chapman, A. W., M.D.; Florida, . . . .	1836.
Christy, David; Oxford, Ohio, . . . .	1852.
Chitty, Edward; Kingston, Jamaica, . . . .	1851.
Clapp, Wm. R.; Philadelphia, Pa., . . . .	1831.
Clarke, Alonzo, M.D.; Williamstown, Mass., . . . .	1832.
Clark, Thomas; Bristol, England, . . . .	1827.
Clarke, Edward; Saugerties, New York, . . . .	1832.
Coates, Reynell, M.D.; Philadelphia, Pa., . . . .	1837.
Cocco-Grasso, Lorenzo, M.D.; Palermo, Sicily, . . . .	1847.
Conrad, Timothy A.; Philadelphia, Pa., . . . .	1837.
Cooke, Robt. L.; Bloomfield, N. J., . . . .	1848.
†Cooper, William; Bull's Ferry, . . . .	1817.
Couthouy, Joseph P.; Boston, Mass., . . . .	1837.
†Cozzens, Issachar; Bull's Ferry, . . . .	1822.
†Cramer, Charles; St. Petersburg, Russia, . . . .	1834.
*Croom, Henry B.; Tallahassee, Florida, . . . .	1836.
Cruger, John Peach, M.D., Westchester, N. Y., . . . .	1838.
†Cumberland, William, . . . .	1817.
Dalliba, James; Moriah, New York, . . . .	1826.
Dalton, Henry G., M.D.; Georgetown, Demarara, . . . .	1850.
Dana, James D.; New Haven, Conn., . . . .	1837.
Darlington, Wm., M.D.; Westchester, Pa., . . . .	1827.



# **CORRESPONDING MEMBERS.**

**XV**

<i>Names and Residences.</i>	<i>Elected</i>
Day, Rev. Warren ; Richmond, N. Y., . . . . .	1848.
Day, F. H. ; Ithaca, N. Y., . . . . .	1848.
*Dearborn, Benjamin ; Boston, Mass., . . . . .	1824.
De Corroy, Francisco ; Tabasco, Mexico, . . . . .	1833.
De Kay, George C. ; Bull's Ferry, New Jersey, . . . . .	1824.
Delafield, Maj. Richard ; U. S. A., . . . . .	1851.
De La Motta, J., M.D. ; Charleston, S. C., . . . . .	1817.
Delano, J. C. ; New Bedford, Mass., . . . . .	1836.
De La Sagra, Ramon ; Havana, Cuba, . . . . .	1835.
Del Rio, Prof. Andres ; Mexico, . . . . .	1817.
Demarest, Prof. Anselme Gaetan ; Paris, France, . . . . .	1826.
De Moleon, M. V. ; Paris, France, . . . . .	1833.
†Denning, Wm. H., . . . . .	1832.
De Russey, Col. Edward ; U. S. A., . . . . .	1825.
†De Selding, Charles, . . . . .	1835.
Desor, Edward ; Boston, Mass., . . . . .	1847.
Devan, T. T., M.D., . . . . .	1831.
Dewey, Prof. Chester ; Rochester, N. Y., . . . . .	1817.
Dewey, Timothy, . . . . .	1825.
De Worth, F. ; St. Petersburg, Russia, . . . . .	1835.
Dobereiner, Prof. J. W. ; Jena, . . . . .	1831.
Domnando, M. ; Athens, Greece, . . . . .	1836.
Doubleday, Edward ; Epping, England, . . . . .	1838.
*Douglass, Prof. D. B. ; Brooklyn, N. Y., . . . . .	1817.
Drapier, Prof. A. ; Brussels, Belg., . . . . .	1824.
Du Bois, Henry A., . . . . .	1836.
Dunham, J. ; Lexington, Ky., . . . . .	1825.
Dupont, M. ; Paris, France, . . . . .	1846.
*Eaton, Prof. Amos ; Troy, New York, . . . . .	1817.
*Eaton, Hezekiah H. ; Lexington, Ky., . . . . .	1820.
Ehlers, Juan ; Mexico, . . . . .	1835.
*Eight, James, M.D. ; Albany, N. Y., . . . . .	1820.
Engelspach la Rivière, Aug. ; Brussels, Belgium, . . . . .	1827.
Engelman, George, M.D. ; St. Louis, Mo., . . . . .	1846.
†Farley, G. A., . . . . .	1841.
Featherstonhaugh, G. W. ; Washington, D. C., . . . . .	1828.
Finch, John ; London, England, . . . . .	1833.
Fischer, Prof. G. ; Moscow, Russia, . . . . .	1836.
Fitch, Alexander ; Carlisle, N. Y., . . . . .	1845.
Folkes, Capt. F. A. ; Hamburg, Germany, . . . . .	1832.

Names and Residences.	Elected
Forbes, John, M.D. · London, England, . . . .	1840.
Foster, John W Zanesville, Ohio, . . . .	1846.
*Fowler, Samuel, M.D. Franklin, N. J., . . . .	1824.
Fox, Rev. Charles; Michigan, . . . .	1839.
†Gale, Leonard D.; Washington, D. C., . . . .	1826.
Gardner, Daniel, M.D.; Virginia, . . . .	1840.
Gates, Hezekiah, M.D.; Alabama, . . . .	1829.
Gaudichaud, M.; Paris, France, . . . .	1837.
Gay Claudius Paris, France, . . . .	1831.
Gebhard, John; Albany, N. Y., . . . .	1835.
Gibbes, Prof. Robert W.; Columbia, S. C., . . . .	1849.
Gibbes, Prof. Lewis R.; Charleston, S. C., . . . .	1847.
Gibbs, jr., John; Turks Island, . . . .	1832.
Girard, Charles; Washington, D. C., . . . .	1852.
Guiseppi, Count de Cigalla, M.D.; Greece, . . . .	1841.
Goethe, M.; Jena, . . . .	1826.
Gould, Aug. A., M.D.; Boston, Mass., . . . .	1846.
Graham, Thomas; Edinburgh, Scot., . . . .	1829.
†Graves, J. J., . . . .	1824.
Gray, Prof. Asa; Cambridge, Mass., . . . .	1836.
Greenland, B. R., M.D.; S. Car., . . . .	1817.
Habersham, Joseph C., M.D.; Savannah, Ga., . . . .	1824.
Haldeman, S. S.; Columbia, Pa., . . . .	1846.
*Hale, Moses, M.D.; Troy, N. Y., . . . .	1818.
*Hall, Prof.: Middlebury, Vt., . . . .	1820.
*Hall, Capt. Basil, R. N.; Edinburgh, Scot., . . . .	1827.
Halsted, Marius B., M.D.; U. S. A., . . . .	1845.
Hancock, Dr. Demarara, . . . .	1824.
*Harlan, Richard, M.D. · Philadelphia, Pa., . . . .	1825.
Harris, Rev. Harvey; Chenango, N. Y., . . . .	1847.
Harris, Rev. Thomas; Philadelphia, Pa., . . . .	1817.
*Henderson, Col. Arch.; Washington, D. C., . . . .	1825.
Henderson, James H.; Jefferson County, N. Y., . . . .	1828.
*Hentz, Prof. A. M., . . . .	1832.
Henwood, Wm. Jory; Cornwall, England, . . . .	1842.
Heron, J., M.D.; Warwick, . . . .	1829.
Herrick, Edward C.; New Haven, Conn., . . . .	1837.
†Hickock, William C., M.D.; Vermont, . . . .	1848.
Hill, John H.; Nyack, . . . .	1837.

## CORRESPONDING MEMBERS.

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<i>Names and Residences.</i>	<i>Elected</i>
Hitchcock, Prof. Edward; Amherst, Mass., . . .	1837.
Holmes, A. F., M.D.; Montreal, Canada, . . .	1825.
Holmes, Francis S.; Charleston, S. Car., . . .	1849.
Hope, Rev. Fred. W.; London, England, . . .	1846.
Hopkins, Wm.; Auburn, N. Y. . . . .	1846.
Horsfield, Thomas, M.D.; London, . . . . .	1826.
Hough, Franklin B., M.D.; Somerville, St. Lawrence Co., N. Y.,	1852.
*Howard, William, M.D.; Baltimore, Md., . . .	1821.
Jackson, Charles T., M.D.; Boston, Mass., . . .	1834.
Jacobs, W. S., M.D.; St. Croix, W. I., . . . . .	1826.
*Jacquemont, Victor; Paris, France, . . . . .	1825.
James, Edwin, M.D.; Albany, N. Y., . . . . .	1827.
Jamieson, Rev. J. M.; Sabbathu, India, . . . . .	1847.
Janin, Louis; Paris, France, . . . . .	1828.
†Jay, John C.; Rye, New York, . . . . .	1832.
*Johnson, Prof. Walter R.; Philadelphia, Pa., . . .	1837.
Johnson, Prof. John; Middletown, Conn., . . .	1838.
Jones, Wm. Louis; Georgia, . . . . .	1848.
Julien, M.; Paris, France, . . . . .	1827.
Kellogg, Prof. Ebenezer; Williamstown, Mass. . . .	1817.
King, Alfred T., M.D.; Greensburg, Pa., . . . . .	1852.
†King, C. R., M.D. . . . .	1838.
King, Henry, M.D.; St. Louis, Mo., . . . . .	1846.
King, T. Wilkinson, M.D.; London, England, . . .	1843.
*Kingsbury, Col.; Franklin, Conn., . . . . .	1825.
Kirckhoff, Chev. de, M.D.; Antwerp, Holl., . . .	1826.
Kirtland, Jared P., M.D.; Cleveland, Ohio, . . .	1839.
Knevels, D. Jurco, V.; West Indies, . . . . .	1820.
Lea, Isaac, Philadelphia, Pa., , . . . . .	1829.
†Le Conte, John; Philadelphia, Pa., . . . . .	1817.
†Le Conte, John L., M.D.; Philadelphia, Pa., . . .	1845.
†Lee, Charles A., M.D.; Buffalo, N. Y., . . . . .	1839.
L'Herminier, Felix; Charleston, S. C., . . . . .	1818.
Leidy, M.D., Joseph; Philadelphia, . . . . .	1848.
*Loomis, Col. Lebbeus; New York, . . . . .	1825.
*Madiana, P. Ricord, M.D.; Paris, France, . . . .	1824.
†Mapes, James J.; Newark, N. J., . . . . .	1833.

Names and Residences.	Elected
Marsh, Dexter; Greenfield, Mass., . . . .	1852.
Marshall, Henry, M.D.; Kortright, N. Y., . . . .	1835.
† Marshal, J. R., . . . . .	1838.
Mason, Rev. Francis; Tavoy, Burmah, . . . .	1847.
Mather, W. W.; Columbus, Ohio, . . . . .	1837.
† Maunder, John, . . . . .	1845.
Merriam, James S.; Leyden, N. Y., . . . . .	1847.
Messeler, Rev. Abm.; Somerville, N. J., . . . .	1835.
Metcalf, Wm.; London, England, . . . . .	1842.
† Metcalf, Samuel S., . . . . .	1833.
McClelland, John, M.D.; Calcutta, Hindostan, . . . .	1841.
McGillivray, Wm.; Edinburgh, Scot., . . . .	1831.
McNab, Gilbert, M.D.; Kingston, Jamaica, . . . .	1852.
Michelotti, Giovanni; Turin, Italy, . . . . .	1842.
Moore, Whitby E.; Para, Brazil, . . . . .	1844.
† Morris, O. W.; Knoxville, Tenn., . . . . .	1845.
Morris, Major W. W.; U. S. A., . . . . .	1851.
* Morton, Samuel G., M.D.; Philadelphia, Pa., . . . .	1826.
† Newman, John B., M.D., . . . . .	1847.
Newberry, John S., M.D.; Cleveland, Ohio, . . . .	1852.
Niles, Nathaniel; Paris, France, . . . . .	1830.
Olmstead, Charles H.; East Hartford, Conn., . . . .	1844.
Owen, R. B., M.D.; Tennessee, . . . . .	1817.
Pailloux, A.; Paris, France, . . . . .	1827.
Pecchioli, V.; Pisa, Italy, . . . . .	1846.
† Pease, Wm. H.; California, . . . . .	1841.
† Perkins, Cyrus, . . . . .	1828.
† Petersen, George C., . . . . .	1829.
Pickering, Charles, M.D.; Philadelphia, Pa., . . . .	1828.
Piddington, Henry; Calcutta, Hindostan, . . . .	1846.
Pierce, James; Litchfield, Conn., . . . . .	1821.
Pitcher, Zena, M.D.; Detroit, Michigan, . . . .	1824.
Plumb, Ovid, M.D. Salisbury, Conn., . . . . .	1847.
Poe, Prof. Don Felipe; Havana, Cuba, . . . . .	1851.
* Popham, Major Wm.; Scarsdale, N. Y., . . . .	1825.
Porcher, Francis P., M.D.; Charleston, S. C., . . . .	1847.
Porter, Jacob, M.D.; Plainfield, Mass., . . . . .	1818.
Prescott, John; St. Petersburg, Russia, . . . . .	1836.

## CORRESPONDING MEMBERS.

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Names and Residences.	Elected
Prime, Temple : Cambridge, Mass., . . . . .	1852.
*Rafinesque, C. S. ; Philadelphia, Pa., . . . . .	1817.
Rains, Major Geo. W. U. S. A., . . . . .	1851.
Randall, Henry S. Cortlandville, N. Y., . . . . .	1846.
Randolph, Thomas M. Richmond, Va., . . . . .	1825.
†Rankin, Robert ; Fishkill, N. Y., . . . . .	1836.
Reeve, Lovell ; London, England, . . . . .	1837.
Reid, Lieut. Col. Wm. ; Malta, . . . . .	1839.
Retzius, Prof. Andreas ; Stockholm, Sweden, . . . . .	1849.
Reynolds, J. N. ; Ohio, . . . . .	1829.
†Rhineland, John R., M.D., . . . . .	1824.
Roane, J., M.D. ; Tennessee, . . . . .	1817.
Robertson, Rev. J. J. ; Fishkill, N. Y., . . . . .	1817.
Römer, Ferdinand ; Bonn, Prussia, . . . . .	1845.
Rosa, Wm. V. V., M.D. ; Watertown, N. Y., . . . . .	1847.
Rosenberg, Charles de ; St. Petersburg, Russia, . . . . .	1836.
Saltus, T. B. ; U. S. N., . . . . .	1825.
Savage, Rev. Thomas S. ; Alabama, . . . . .	1847.
*Say Thomas ; Philadelphia, Pa., . . . . .	1825.
†Schæffer, George C., . . . . .	1842.
Schomburgk, Robt. H. ; England, . . . . .	1829.
Schoolcraft, Henry R. ; Michigan, . . . . .	1819.
Schuler, G., M.D. ; Jena, . . . . .	1835.
Sembnitzky, Prof. J. G. ; St. Petersburg, Russia, . . . . .	1836.
Senakerim, D. M. Constantinople, Turkey, . . . . .	1844.
Silliman, Jun., Benj. ; New Haven, Conn., . . . . .	1838.
Sinclair, Wm. ; West Hoboken, N. J., . . . . .	1847.
Sismonda, Eugene ; Turin, Italy, . . . . .	1845.
Skinner, Ezekiel, M.D. ; Liberia, . . . . .	1837.
Sloat, L. W. ; California, . . . . .	1838.
Smith, Franklin ; New Brunswick, N. J., . . . . .	1828.
Smith, Hamilton L. ; Cleveland, Ohio, . . . . .	1852.
†Smith, S. R., . . . . .	1826.
*Smith, Prof. Nathan ; New Haven, Conn., . . . . .	1825.
St. John, Prof. Samuel ; Hudson, Ohio, . . . . .	1838.
Stephens, Daniel ; Charleston, S. C., . . . . .	1825.
Stewart, Commodore Charles ; U. S. N., . . . . .	1825.
†Stillman, Charles H., M.D. ; Plainfield, N. J., . . . . .	1840.
†Storer, E., . . . . .	1830.
†Stout, A. A., M.D. ; U. S. N., . . . . .	1847.

Names and Residences.					Elected
Swainson, William ;	London, England,	.	.	.	1830.
*Telfair, Charles ;	Mauritius,	.	.	.	1830.
†Thomson, James ;	Italy,	.	.	.	1845.
†Thomson, Henry L. ;	Italy,	.	.	.	1846.
†Totten, Col. Joseph G.,	U.S.A.,	.	.	.	1824.
†Toronsenás, P. S.,	.	.	.	.	1817.
*Troost, Prof. Gerard ;	Nashville, Tenn.,	.	.	.	1837.
Vaccari, Prof. C. ;	Chioggia, Italy,	.	.	.	1832.
Vancleve, John W. ;	Dayton, Ohio,	.	.	.	1852.
Vandermælen, Prof. ;	Brussels, Belgium,	.	.	.	1834.
Van Mons, Prof. ;	Louvain,	.	.	.	1826.
†Vanuxem, Prof. Lardner ;	Bristol, Pa.	.	.	.	1820.
Van Winthem, Wm. ;	Hamburg, Ger.,	.	.	.	1824.
*Velasquez, Don Joaquin ;	Havana, Cuba,	.	.	.	1851.
Verplanck, D. C. ;	Fishkill, N. Y.	.	.	.	1817.
Vickar, Prof. Benjamin M.,	.	.	.	.	1824.
Vigora, N. A. ;	London, England,	.	.	.	1827.
Villa, Antonio ;	Milan, Italy,	.	.	.	1846.
Villa, Jean Baptiste ;	Milan, Italy,	.	.	.	1846.
Von Breda, Prof. M. ;	Ghent, Belg.,	.	.	.	1824.
*Von Lederer, Baron ;	Vienna, Austria,	.	.	.	1827.
Ward, J. C. ;	Chilicothe, Ohio,	.	.	.	1836.
Ward, Matthew A., M.D. ;	Athens, Ga.,	.	.	.	1826.
*Warden, David B. ;	Paris, France,	.	.	.	1824.
Waring, William C., M.D. ;	Savannah, Ga.,	.	.	.	1824.
Warren, Rev. Joseph ;	Allahabad, Hindostan,	.	.	.	1848.
Webb, Philip Barker ;	Paris, France,	.	.	.	1840.
*Webster, Prof. J. W. ;	Boston, Mass.,	.	.	.	1819.
†West, Charles E. ;	Buffalo, N. Y.,	.	.	.	1839.
*White, Stephen ;	Salem, Mass.,	.	.	.	1824.
Whittlesey, Col. Charles ;	Columbus, Ohio,	.	.	.	1852.
†Wilber, N. B. ;	Oneida, N. Y.,	.	.	.	1841.
*Wilkes, Charles ;	New York,	.	.	.	1825.
Williams, John L. ;	Pensacola, Florida,	.	.	.	1827.
*Woodbury, Lucius, M.D. ;	Mexico,	.	.	.	1824.
Yandell, Prof. Lunsford P. ;	Louisville, Ky.,	.	.	.	1852.
Yarrell, William ;	London, England,	.	.	.	1837.

ANNALS  
OF THE  
LYCEUM OF NATURAL HISTORY.

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*Observations on the LIMOSA SCOLOPACEA of Say.* By JOHN  
BELL: Read October 9th, 1848.

THIS bird, first described by Mr. Say, has heretofore been confounded with *Scolopax Noveboracensis*, to which it bears so strong a resemblance, that it has been considered by ornithologists as identical. I am now happy, from authentic sources, to establish the difference between the two, and to confirm the truth of Mr. Say's determination.

Mr. Say describes his bird as follows: dusky cinereous, bill straight; upper mandible a little longer, and very slightly arcuated towards the tip, about as long again as the head; yellowish green, tip black, dilated, rugous with a dorsal groove; palate, with reflected cartilaginous spines; head, with a line from the upper mandible over the eye and inferior orbit, white; cheeks, chin, throat, and origin of the breast, cinereous; the plumage margined with dull whitish; back, beneath the interscapulars, white; rump plumage white, fasciate with

black, which latter color is more abundant; lesser wing-coverts margined with whitish; greater wing-coverts black; terminal margin white; secondaries black, interior ones very slightly edged with white; outer shaft white, a little longer than the second; breast and belly white; sides spotted or undulated with blackish cinereous; inferior tail coverts with black abbreviated bands, the white prevailing; feet dirty greenish; toes webbed at the base, the exterior one reaching to the first joint of the toe, the interior one very short, hind toe rather long.

Length from tip of bill to the end of the tail,  $11\frac{1}{4}$  in.

„ of bill - - - - -  $2\frac{3}{4}$  „

„ of feet, - - - - -  $5\frac{1}{4}$  „

Tail projecting beyond the tip of the wings,  $1\frac{1}{4}$  „

Several specimens which were shot in a pond at the Bowyer Creek, correspond with the genus *Scolopax* Cuv., in having the dorsal grooves at the tip of the upper mandible, and in having this part dilated and rugose, but the eye is not large, nor is it placed far back upon the head, which two latter characters, combined with its more elevated and slender figure, and the circumstance of the thighs being denuded of feathers high above the knees, and the exterior toe being united to the middle toe by a membrane, which extends as far as the first joint, and the toes being also margined, combine to distinguish this species from those of the genus to which the form and characters of its bill would refer it, and approach it more closely to *Limosa*. In one specimen, the two exterior primaries on each wing were light brown, but the quills were white. It may, perhaps, with propriety be considered the type of a new genus, and under the following characters be placed between the genera *Scolopax* and *Limosa*.

*Bill* longer than the head, dilated and rugose at the tip;



*tip* slightly curved downwards and with a dorsal groove; *nasal groove* elongated; *feet* long, an extensive naked space above the knee; *toes* slightly marginated, a membrane connecting the basal joints of the exterior toes; first of the *primaries* rather longest.

From a number of specimens now before me, I find the adult in summer, to have the entire lower parts uniformly rufous, the sides barred with black. No mention of this circumstance being made by Mr. Say, I presume that his description was taken from a bird in its winter plumage: with this exception it agrees with the specimens in my possession. He says, however, that the tail projects more than an inch beyond the wings; in all those which I have examined, the wings and tail are nearly equal, the last extending only about a quarter of an inch beyond the former; this difference on Mr. Say's bird, probably arose from its being a dried specimen.

I propose to call this species, *Scolopax longirostris*, and venture to offer this description of it.

*Scolopax longirostris*.—*Bill* very long, exceeding in length any other species of the genus, straight; tibia bare, one inch above the knee. Brown or brownish black marked with rufous; line from base of the bill, over the eye dull yellowish white. Back and upper surface of the wings, barred with black, sides of the head and neck spotted with black.

From the circumstance of finding many specimens of this bird in the collections of our most distinguished ornithologists labeled *Scolopax Noveboracensis*, and all of them procured at various times from the coast of Long Island, we may infer that it is a yearly visitor.

*Observations on the preceding Paper.* By GEORGE N LAWRENCE. Read January 7, 1849. Plate 1.

THE snipe, described a few weeks since by Mr. Bell, is undoubtedly identical with the *Limosa scolopacea* of Say; for his original description, see the Notes to Long's Expedition, vol. ii., p. 170.

As it is considered due to the first describer of a species that the specific name given by him should, if possible, be retained, I think it can be done in this instance.

Mr. Say has never had the credit of his discovery before, as all recent writers on ornithology have supposed his bird to be the Red-breasted Snipe, *Scolopax grisea*, and, consequently, quoted his name as a synonym of that species. He placed it with some doubt in the genus *Limosa*, which he considered it more to resemble than *Scolopax*; but, at the same time, thought it should be made the type of a new genus, to come between the two. He, however, proposed no generic name, although he gave the characteristics upon which to found it. I have thought it not out of place to introduce here the generic characters as laid down by him, together with a few of his remarks, as follows:

"It may, perhaps, with propriety, be considered as the type of a new genus, and, under the following characters, be placed between the genera *Scolopax* and *Limosa*:

"Bill longer than the head, dilated and rugose at tip; tip slightly curved downwards, and with a dorsal groove; nasal groove elongated; feet long, an extensive naked space above the knee; toes slightly margined, a membrane connecting the basal joints of the exterior toes; first of the primaries rather longest."

Dr. Leach, in making his catalogue of the British Museum, and probably acting under the suggestion of Mr. Say, formed a new genus, viz: "*Macroramphus*," for *Scolopax grisea*, which he, with others, supposed the same as Say's bird. His characteristics of the genus agree very closely with those given by Mr. Say. Bonaparte and Nuttall consider the genus as well founded, and have accordingly adopted it in their works, which has also been done more recently by Gray in his "*List of the Genera of Birds*." This bird must now be added, and is the most typical of the two species of which this genus will then consist; consequently, the name should be changed to *Macroramphus scolopaceus*, thereby retaining Mr. Say's specific name.

On plate No. 1, is represented a figure of the male in summer plumage, from a specimen in my possession, and from which Mr. Bell's description was made; also, a figure of the female in winter plumage, as described by Say. The female exceeds the male in size, which is characteristic of the family.

The specimen from which the drawing of the female was taken was obtained by Mr. Bell, and is now in the Museum of the Academy of Natural Science of Philadelphia. It exceeds in size most of the individuals examined, which was the cause of Mr. Bell's attention being first called to it.

The average size does not differ much from *M. griseus*, (although the bills and legs are uniformly much longer;) this accounts for its having been heretofore confounded with that species.

It is found abundantly on the shores of the Gulf of Mexico in winter. The principal migration is, no doubt, up the Mississippi Valley, and farther west, where it was first found by Say. On our coast it is at present rather rare.

*On the PIPILO OREGONUS, as distinguished from the PIPILO ARCTICUS of Swainson. By JOHN BELL. Read November 27th, 1848.*

UPON a critical examination of many specimens of the bird, figured and described by Mr. Audubon, as the *Fringilla arctica*, many strongly marked characters may be observed, which distinguish it from the *Pipilo arcticus* of Mr. Swainson, with which it has been confounded, not only by him, but by Mr. Nuttall likewise.

Mr. Audubon's specimens were procured in the Oregon territory, and Mr. Nuttall observed it very common in the valley of the Columbia. Mr. Swainson's species is probably never found except on this side of the mountains, and is the bird which Mr. Nuttall considered as *Pipilo erythrophthalmus*, for he observes that this bird is found even at the base of the mountains.

During an expedition to the upper Missouri, in the year 1843, we did not meet with a single individual of that species, but daily saw the bird which he undoubtedly mistook for it, and which is easily recognised as Mr. Swainson's *P. arcticus*, answering his description in every particular, except a trifling difference in the white markings on the scapulars and tail feathers, which in the absence of further proof is insufficient to make a new species of it, which however it may hereafter prove to be.

From this bird having hitherto been only found in the Oregon territory, it is proposed to name it

PIPILLO OREGONUS. Bell.

*Outer web of the first pair of tail feathers black ; the*

*black on the breast extending much farther down than in other species, and running straight across.*

*Fringilla Arotica.* Audubon and Nuttall.

Head, neck all round, a part of the breast and upper parts in general, black ; sides and lower tail-coverts orange-red ; the latter paler ; central part of the breast and abdomen white ; feathers of the tibia dusky, margined with whitish ; an elongated patch on the outer web of all the scapulars, a [small terminal spot on the first row of small coverts, and on the secondary coverts, and a large patch at the end of the inner web of the outer three tail feathers on each side white.

*Female* smaller, differing only in having the parts which in the *male* are black, dull brownish black.

Length of the male  $8\frac{1}{2}$  inches ; wing,  $3\frac{1}{2}$  inches.

female 8 " ; "  $3\frac{1}{4}$  "

Inhabits on Columbia river, abundant and migratory. See Audubon's Synopsis, page 123.

In the bird described by Mr. Swainson, the white mark on the tail is much larger and runs across both webs, in the first, second, and third pairs, and in some extending to the fourth and fifth on the inner web. The black on the breast terminates in a crescent ; the head, neck and breast are not of a very deep black, and nearly the whole of the outer web of the scapulars is white, forming a conspicuous white band ; the greater and less wing coverts are largely marked with white ; rump ashey.

In the *P. Oregonus*, the bill and feet are rather stronger, the bill less acute on the ridge, the black extends much farther down the breast, and runs straight across, the color being uniformly darker throughout, with much less white on the tail ; the outer web of the first pair of tail-feathers black,

under wing-coverts darker ; the white marks on the wings and scapulars much less conspicuous and of a different shape, forming an oval spot ; the feathers on the tibia are darker and longer ; the white on the tail is confined to the inner webs of the three outer pairs.

*Synopsis of the COLEOPTEROUS INSECTS of the Group CLERIDÆ which inhabit the United States.* By JOHN L. LE CONTE, M. D.

THE recent political events of the South of Europe have caused severe interruptions to those close commercial relations which lend their influence to the advancement of science, as to every other adjunct of civilization. These events must form my excuse for delaying to this late period the small essay on Cleridæ which has been long promised to my entomological friends, and the apparition of which has occasionally terrified them into parting with some highly-prized specimen of this beautiful group. At least to this cause, no less than to personal favor, must I ascribe the kind liberality with which many rare and even unique specimens have been quietly transferred from the collections of Messrs. Schaum, Haldeman, Melsheimer, Ziegler, Wilcox, Guex, and other friends, to a final resting-place within my boxes. For these, as well as the numerous other favors received from the above named gentlemen, I tender them my sincere thanks, as I feel confident that, without the assistance rendered by their rich collections, any effort on my part, for the elucidation of the American Coleoptera, would fall far short of even a moderate degree of completeness.

Having recently, however, succeeded, after more than two years of repeated endeavor, in procuring a copy of the "*Essai Monographique sur les Clerites*," by the Marquis Spinola, I now venture to present a synopsis of such species of this interesting family as have been found within the limits of our Republic. Before proceeding to this task, I feel obliged again

to call attention to the extreme indisposition which prevails in the South of Europe to notice any thing which emanates from countries less favored by geographical proximity to the extinct foci of civilizing action. The anciently intolerant spirit and exclusive pretensions of the southern nations have not yielded to the advancement of their former pupils; but gone are all the attributes of greatness, of which these were the fitting companions; the really superior position once held in science and literature has been abandoned; and even where industry in acquiring and zeal in diffusing knowledge are combined in some gifted individual, a secret spirit of economy,\* which ill contrasts with the luxuriance and liberality of social life in those regions, bars the library doors to the intellectual productions of other nations.

The laborious students of the North succeed occasionally in awakening a slight degree of interest: but England is less known than when her bivalve treasures were the subject of greedy expectation in the palaces of Rome; while America, of dubious existence, indeed, to the mass of the people, is considered by the few who are aware of her existence, too distant and too uncivilized to have produced a single intellect capable of advancing any department of knowledge!

These views have been still more impressed on my mind, by perceiving the extreme brevity with which M. Spinola has

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\* It would be, to say the least, illiberal to accuse the cultivators of science in Southern Europe of a want of industry and perseverance in their endeavors to procure American books. Commerce is always reciprocal, and it is quite as easy for Frenchmen or Italians to procure books from this country as it is for Americans to procure works printed in France or Italy. Considering the rapidity with which unknown species (too likely, in most cases, to remain unknown) are named and *diagnosed*, "pour prendre date," want of zeal is not to be numbered among their faults. I therefore prefer tracing the neglect mentioned in the text to national characteristics, which will find their remedy only in the improvements which the slow course of time may bring about.



passed over all allusion to foreign authors. Excepting a few standard works of the "fathers" of the science, and Dr. Klug's *Monograph of the Cleridæ*, (which is briefly reviewed in the second volume,) no books are cited, and the student is left in entire ignorance that the subjects had ever been touched by other observers. With a degree of charity to the faults of his predecessors, which is more to be envied than imitated, scrupulous silence is preserved in all cases of ambiguity or error. Although the object of the book (preface, p. viii) is said to be "exclusivement la détermination et la reconnaissance des espèces," so far from even containing a *complete catalogue of species*, it passes by, without comment, all such as have not fallen under the personal observation of the author. With regard to the style of the work, I shall say but little. From the small number of entomological students in this country, it will meet the eyes of but few persons interested in either its merits or its faults; European students are already familiar with both. Such of the latter as have been alluded to, are evidently not to be charged personally upon the author; they are a necessary and generic character of all works emanating from that part of the world, and it is a little unfortunate that their influence is not confined within narrower limits. It is unfortunate to see many of the inhabitants of the "centre of civilization" imbibing the exclusive spirit of their Transalpine brethren. They should already have learned to feel that France is not the world.

In the classification of the American species of this tribe, I have followed partly Klug and partly Spinola. The characters used by the latter, although divided with great care into "naturels," "provisoirement artificiels," and "purement artificiels," scarcely lead to a natural grouping of the genera, while many of these are extremely indistinct in their limits,

and undefined by any prominent trait. On the other hand, the tendency of Dr. Klug's arrangement is to merge together some groups which, by their well characterized forms, no less than by their habits of life, are to be considered distinct: for this reason, I have preferred retaining *Hydrocera* separate from *Clerus*. The form and position of the emargination of the eyes seems also a character of too much importance to be neglected, and I have, therefore, continued *Cymatodera* distinct from *Tillus*, and *Phyllobænus* (Spin.) and *Ichnea* (Lap.) separate from *Enoplium*.

On the affinities of this group I have nothing new to add, having had no opportunity of studying the transformations. For this subject I refer the student to the interesting essays of Klug and Spinola.

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#### TILLUS Fabr.

1. *collaris*, "*antennarum serra 7-articulata, articulis plus (sic!) longioribus quam latioribus.*" Long. 2 lin.

Spin. i., 98, tab. 2, fig 6.

Niger, prothorace disco rufo, utrinque constricto, medio dilatato, elytris punctato-striatis, stria 11<sup>ma</sup> pone medium oblitterata. (mihi ignotus.)

2. *pectinicornis*, "*antennis bipectinatis, ater, thorace postice valde coarctato, capite humerisque rufis.*" Long. 4 lin.

Klug, 270, tab. 2, fig. 2.

"Elytra confertim punctato-striata, punctis excavatis, sat magnis, basi rufa." (mihi ignotus.)

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#### PERYLYPUS Spin.

1. *carbonarius*, "*niger nitidus, paulo pubescens,*

*punctulatus, elytris opaciusculis, fortius punctatis.*" Long. 3 lin.  
California et Mexico.

Spin. i., 105, tab. 5, fig. 4. (mihi ignotus.)

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COLYPHUS Spin.

1. *signaticollis*, "*punctatus, pubescens, testaceus, prothoracis dorso nigro trimaculato.*" Long. 4 lin. California.

Spin. i., 134, tab. 5, fig. 5. (mihi ignotus.)

2. *cinotipennis*, "*punctatus, pubescens, supra testaceus, capite prothoraceque nigro maculatis, elytrorum disco nigro.*" Long. 4 lin. California.

Spin. i., 135, tab. 5, fig. 6. (mihi ignotus.)

3. *rufipennis*, "*punctatus, pubescens, niger elytris rufis.*" Long. 4 lin. California.

Spin. i., 136, tab. 9, fig. 2. (mihi ignotus.)

4. *interceptus*, "*rufus, elytrorum limbo maculisque duabus discoidalibus nigris.*" Long. 4 lin.

Spin. i., 137, tab. 9, fig. 3. (mihi ignotus.)

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ELASMOCERUS.

MONOPHYLLA † Spin.\*

MACROTELUS † Klug.

Oculis antice profunde emarginatis, fere divisis, palpis maxillaribus brevibus, cylindricis, labialibus articulo ultimo valde dilatato securiformi, ligula integra, tibiis extus non sulcatis, tarsis elongatis, 5-articulatis unguibus bidentatis. Nomen mutavi, propter Macroteliam Hymenopterorum, Monophyllum vero mammalium, genera antea condita. (Vide Agass. Nom. Zool.)

1. *megatoma* Spin. i., 385, tab. 28, fig. 5.

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\* † nomen præoccupatum notat. ‡ nomen erroneum. † nomen ineditum.

Species hæcce, mihi ignota, a sequente thorace postice angustato differre videtur. Antennarum articulus ultimus valde elongatus a Spinola magni momenti habitus, sexus mera differentia est.

*2. terminatus, linearis, niger punctatus, cinereo-pubes-  
cens, thorace elongato, cylindrico, rufo, macula magna nigra,  
abdomine rufo.* Long. 2—4 lin.

*Monophylla terminata* Spin. ii., 126, tab. 6, fig. 3.

*Tillus (Macrotelus) terminatus* Kl. 274.

*Tillus terminatus* Say, Bost. Journ. Nat. Hist. i., 160.

♂ antennarum articulo ultimo reliquis conjunctis multo longiore, his fere indistinctis.

♀ antennarum articulo illo reliquis parum longiore, articulis 4 ante apicem dilatatis, triangularibus.

Habitat ubique minus frequens. DD. Engelman et Wilcox.

#### CYMATODERA Gray.

Oculis antice parum emarginatis, palpis maxillaribus cylindricis, labialibus articulo ultimo valde dilatato securiformi, ligula integra, tibiis extus non sulcatis, tarsis elongatis, 5-articulatis, unguibus bifidis.

*1. tenera, linearis, brunneo-testacea, longius cinereo-pubes-  
cens, thorace, utrinque leviter constricto, profundius pone medium,  
sparsim punctato, elytris seriatis punctatis interstitiis subtiliter  
punctulatis, macula basali, alteraque ad medium flavis.* Long. 4 lin.

Habitat ad urbem St. Louis. D. Engelman.

Statura *P. bicoloris*, mollior, brunneo-testacea, antennis pedibus abdominisque basi pallidioribus. Caput punctatum. Antennæ corporis dimidio vix breviores, art. 3—7 æqualibus,

2<sup>a</sup> sesqui brevior, ultimo præcedente sesqui longior. Thorax latitudine plus duplo longior, antice vix constrictus, postice modice constrictus, lateribus obsolete dilatatis, parce punctatus, transversim rugulosus. Elytra thorace fere triplo longiora, seriatim punctata, punctis minoribus, interstitiis striis latioribus, subtiliter punctulatis, rugosisque, angulo suturali integro: brunneo-testacea, macula basali alteraque ad medium fere ad suturam extendente flavis.

2. *inornata*, *linearis postice paulo latior, picea, nitida, densius cinereo pubescens, thorace utrinque modice constricto, transversim rugoso, parce punctato, elytris punctato-striatis, punctis quadratis*. Long. 5 lin.

*Tillus* (Cymatodera) *inornatus* Klug, 274.

*Prionocera inornata* Say, Best. Journ. i., 161.

Habitat in Pennsylvania. D. Ziegler.

3. *brunnea, elongata, picea densius pubescens, capite thoraceque confertissime punctatis, hoc antice leviter, pone medium valde constricto, elytris nitidis, punctis magnis aequalibus quadratis seriatim, abdomine rufescente*. Long. 6 lin.

Mels. Pr. Ac. Nat. Sc. ii., 306.

Habitat in Pennsylvania (Mus. Melsheimer); in Ohio, a D. Schaum amicissime data; antennis breviusculis, articulo 3<sup>a</sup> quam 4<sup>a</sup> paulo longior, ultimo præcedentes duos æquante.

4. *undulata, elongata, pubescens, picea, capite thoraceque confertim punctatis, hoc antice modice, postice angustato valde constricto, basi medio impresso, subbinodoso, elytris punctis quadratis seriatim ad apicem fere obsolete, fasciis 3 dentatis, antennis pedibus abdomineque flavis*. Long. 5½ lin.

*Tillus undulatus* Say, Journ. Ac. Nat. Sc. v., 174. Kl. 383.

*Cymatodera longicollis* Spin, i., 147, tab. 10, fig. 1.

*Cymatodera Bosci* Chevrolat. An. Ent. Fr. II. i., 31.  
(varietas postpectore testaceo.)

Habitat in provinciis mediis.

5. *bicolor*, *linearis nigra, pubescens, thorace utrinque profundius constricto, subtilius punctato, flavo, margine utrinque nigro, elytris punctis quadratis seriatis, interstitiis subrugulosis, antennarum art. 1<sup>m</sup> palpis femorumque basi flavis.* Long.  $3\frac{3}{4}$ — $4\frac{1}{2}$  lin.

*Tillus bicolor* Say, Journ. Ac. Nat. Sc. v., 174. Klug, 383.

Habitat ubique minus frequens. Georgia, D. Lud. Leconte, Pa. D. Ziegler, variat elytris fascia ad medium obsoleta testacea. Marylandia D. Morris.

6. *longicornis, linearis, supra brunnea nitida pubescens, thorace utrinque constricto, elytris punctis minoribus seriatis postice obsoletis, a medio versus basin flavescens, antennis elongatis articulis 2<sup>m</sup> et 3<sup>m</sup> minutis.* Long. 3 lin.

Ad urbem Sta Fe Novæ Mejico collegit D. Fengler.

*Linearis, subtus cum pedibus testacea, supra brunnea.* Caput fere læve oculis maximis. Antennæ corpore vix breviores, compressæ, articulis æqualibus, 2<sup>m</sup> 3<sup>m</sup> que minutis graniformibus, ultimo paulo longiore. Thorax latitudine plus æsqui longior, ante medium modice constrictus, pone medium angustior valde constrictus, lateribus ad medium dilatatis, disco vix obsolete rugoso. Elytra thorace plus duplo latiora parallela, humeris non rotundatis, minus grosse seriatim punctata punctis versus apicem obsoletis, interstitiis impunctatis, angulo suturali integro, a medio versus basin plus minusve testacea.

7. *angustata, brunneo-testacea, thorace utrinque profunde constricto, elytris postice dilatatis, punctis seriatis postice obsoletis; fasciis 2 obscurioribus.* Long. 4 lin.

Spin. i., 149, tab. 7, fig. 1. California (mihi ignota.)

**PRIOCERA Kirby.**

Oculis antice emarginatis, palpis maxillaribus cylindricis, labialibus articulo ultimo dilatato, vix transverso, ligula emarginata, tibiis extus apice sulcatis, tarsis brevibus, 5-articulatis, unguibus simplicibus.

1. *castanea*, *rufa nitida*, *longius parce pubescens*, *thorace parce punctato*, *in ipsa basi constricto*, *elytris antice seriatim punctatis*, *singulo maculis 2 pone medium flavis*, *fusciaque lata nigra*, *pedibus piceis*. Long. 3—5 lin.

*Opilus castaneus* Newman, Ent. Mag. v., 380. Klug, 392.

*Priocera rufescens* Spin. i., 119, tab. 4, fig. 2.

*Priocera* ? *maculata* Ziegler, Pr. Ao. Nat. So. ii., 268.

Habitat ubique rarissime, NovEboraci, Ohio, Alabama.

D. Haldeman. Variat macula altera minuta flava ad basin.

**TARSOSTENUS Spin.**

Oculis antice emarginatis, palpis omnibus elongatis, triangularibus, tibiis extus apice sulcatis, tarsis posterioribus elongatis, angustis, sub-5-articulatis, unguibus simplicibus, antennis articulis 3 ultimis majoribus.

1. *albofasciatus*, *linearis cylindricus niger*, *parce pubescens*, *thorace inæqualiter punctato*, *medio subimpresso*, *elytris confertim seriatim punctatis*, *punctis pone medium minoribus confusis*, *fascia albida mox pone medium signatis*. Long. 2½ lin.

*Opilus albofasciatus* Mels. Pr. Ao. ii., 306.

Habitat in Pensylvania, a Dom. Melsheimer benevole datus.

**TRICHODES Herbst. Fabr.**

Oculis antice profunde emarginatis, palpis maxillaribus

subcylindricis, articulo ultimo longiore parum dilatato, labialibus valde dilatatis, ligula apice dilatata, subrotundata: tarsis 4-articulatis, unguibus simplicibus: antennis apice clavatis, clava 3-articulata conica, truncata.

1. *ornatus*, *cyaneus*, *sparse pubescens*, *elytris subtiliter punctulatis*, *macula annulari ad humerum ramum postice versus suturam emmittente*, *fascia postice ad medium, alteraque antice obliqua versus apicem flavis*. Long.  $3\frac{1}{2}$ —6 lin.

Say, J. Ao. iii. 189. Klug, 340. Spin. i., 327, tab. 31, fig. 5.

Habitat in Territorio Missouriensi et ad Sta Fe. D. Pengler.

Var.  $\alpha$  ramo postico maculæ annularis interrupto. Oregon.  $\beta$ , macula annulari quoque interrupta; fasciis posticis angustis. Oregon, D. Wilcox.

2. *Nutalli*, *elongatus*, *cyaneus*, *elytris sparsim minus subtiliter punctatis*, *macula annulari ad humerum, margine laterali usque ad medium, fascia transversa ad medium alteraque paulo obliqua versus apicem rubris*. Long.  $4\frac{1}{4}$  lin.

Kirby, Lin. Trans. xii., 395. Klug, 337. Spin. i., 217, tab. 31, fig. 2.

Habitat ubique minus frequens; præsertim in Territorio Missouriensi.

3. *apivorus*, *purpurco-niger*, *densius pubescens*, *elytris confertim cribrato-punctatis*, *rubris*, *fasciis duabus latis, apiceque nigris*. Long.  $5\frac{1}{2}$ —7 lin. Germ. Ins. Nov. 81. Klug, 332. Spin. i., 307, tab. 30, fig. 4.

*Trichodes trifasciatus* Sturm Cat. ed. 1<sup>ma</sup>, 59.

*Trichodes cribripennis* † Dej. Cat.

*Trichodes Nutalli* † Say, Bost. Journ. i., 164.

Habitat in provinciis australibus.

Var. ? fasciis ad suturam interruptis. T. interruptus Thompson MSS.



Specimen unicum ad Saratoga NovEboraci lectum, a me haud rite comparatum: descriptio tamen a D. Thompson scripta, fasciis interruptis exceptis, cum *T. trifasciato* omnino congruit.

CLERUS Geoff. Fabr.

*THANASIMUS* Latr.

Oculis antice emarginatis, palpis maxillaribus suboylin-  
dicis, vel parum dilatatis, labialibus elongatis articulo ultimo  
valde dilatato, ligula emarginata; tarsorum articulo 1<sup>mo</sup> brevi,  
nonnunquam obsoleto, antennis apice plus minusve incrassa-  
tis.

Genus specierum locuples, secundum antennarum formam  
in sectiones tres dividitur.

§ 1. Palpi maxillares subcompressi, labiales triangulares,  
modice dilatati; antennæ articulis 3 ultimis subabrupte ma-  
joribus, unguibus simplicibus. *THANEROCLERUS* Spin.

1. *sanguineus, fuscus pubescens, thorace strigose punctato, medio subimpresso, elytris sanguineis, grossius disperse punctatis, abdomine rufescente.* Long. 2½ lin.

Say, Bost. Journ. i., 162. Klug, 310. Spin. i., 200, tab.  
17, fig. 3.

Habitat in provinciis mediis minus frequens.

§ 2. Antennæ articulis 3 ultimis subabrupte majoribus,  
clavam conicam efformantibus; ungues late dentati. *CLERUS*  
Spin.

II. CONVEXI.

2. *4-signatus, rufus nitidus, breviter pubescens, thorace punctulato, elytris confertim punctulatis, nigris fasciis duabus albidis, basi late rufis, pedibus antennisque nigris.* Long. 5 lin.

Say, Bost. Journ. Nat. Hist. i., 162. Klug, 293.

Habitat ubique rarissime; a D. Ziegler amico datus.

3. *analis*, *rufus longius dense cinereo-villosus, thorace punctulato, elytris confertissime punctulatis, nigris, fasciis duabus albidis, basi rufis, postpectore pedibus abdomineque nigris, ano sanguineo.* Long.  $3\frac{1}{2}$  lin.

Specimen unicum ad Arkansas flumen ad montes inveni. Præcedente duplo minor, dense cinereo-pubescent. Caput thoraxque rufa, dense subtilissime punctulata, hic convexiusculus, lateribus rotundatus, antice profunde transversim impressus. Elytra humeris prominulis, convexiuscula, confertissime punctulata, nigra basi rufa, fascia angusta, ad latera modice dilatata, postice leviter concava ad medium, alteraque antice paulo obliqua versus apicem albidis. Pedes postpectus abdomenque rufa, hoc segmentis 2 ultimis sanguineis; antennis rufis.

4. *ichneumoneus*, *rufus pubescens, thorace convexo, dense punctulato, elytris confertim punctatis, fascia ante medium, dodranteque postica nigra apice late cinereo-pubescente, antennis pedibusque nigris, postpectore fusco.* Long. 5 lin.

Fabr. Syst. El. i., 280. Klug, 294.

Clerus rufus Oliv. Ins. 4, 76, 14, tab. 1, fig. 16. Spin. i., 252, tab. 24, fig. 3.

Habitat ubique sat frequens.

5. *rosmarus, elongatus, postice paulo latior, rufus dense pubescens, abdomine tibiis antennarumque clava nigris, elytris basi confertim punctatis, usque ad medium rufis, dein testaceis, fascia parva intermedia alteraque latiore versus apicem nigris.* Long.  $3\frac{1}{4}$  lin.

Say, J. Ac. iii., 190. Klug, 293.

Habitat in provinciis mediis minus frequens.

6. *lunatus, rufus longius pubescens, thorace convexo,*

*vix punctulato, elytris confertim punctatis, fascia angusta albida nigro-marginata postice concava, mox pone medium signatis; apice dense cinereo-pubescente, abdomine pedibus antennisque nigris.* Long.  $3\frac{3}{4}$  lin.

Sturm in Spin. i., 255, tab. 24, fig. 2.

Clerus bicolor Melsheimer Pr. Ac. Nat. So. ii., 307.

Habitat in provinciis mediis et australibus minus frequens.

D. Zimmermann.

7. *angustus, elongatus postice paulo latior, rufus pubescens, thorace punctulato, lateribus minus rotundato, elytris usque ad medium confertim subseriatim punctatis, fascia lata nigro marginata mox pone medium albida, antennis pedibusque picis basi rufis.* Long.  $2\frac{1}{2}$  lin.

Clerus oculatus † Dej. Spin. i., 267, tab. 26, fig. 1.

Habitat in provinciis australibus. Propter C. oculatum Sayi, (Bost. Jour. i., 163,) speciem hucusque dubiam, sed non leviter repudiandam, nomen Dejeanianum delendum. Statura fere C. rosmari, duplo minor.

8. *crabronarius, "niger, elytris velutinis, medium prope flavo unimaculatis, apice sericeo albidis, nigroque maculatis."* Long. 7 lin.

Spin. i., 247, tab. 23, fig. 1. Mihi ignotus.

9. *mexicanus, niger, pubescens, thorace convexo punctato, elytris punctatis, subtilius ad apicem, fascia interrupta ad medium albida, apice late cinereo-pubescente.* Long.  $3\frac{3}{4}$  lin.

Spin. i., 248, tab. 22, fig. 2, et tab. 27, fig. 2. (icones male tinctæ, spatio elytrorum apicali albido depicto, dum in exemplis pars illa pube solum dense cinerea vestita est.

Habitat in Nova Mejico, Sta Fe. D. Fengler.

10. *cordifer, niger dense cinereo-pubescent, thorace lateribus rotundato, confertissime punctulato, elytris margine rubro ad*

*medium subito late dilatato, fere ad suturam extendente, antice posticeque nigerrimo cincto.* Long.  $4\frac{1}{4}$  lin.

Var.  $\alpha$ . Colore rubro basim elytrorum totam occupante, macula solum parva nigerrima ante medium, alteraque subapicali magna cordata, antice nigerrima reliotis.

Habitat in Artemisiæ tridentatæ folia Territorio Missouriensi.

Statura fere sequentis, niger dense cinereo pubescens, pilisque sparsis erectis nigris obsitus. Caput thoraxque confertim subtiliter punctata, hic convexus, lateribus rotundatus, transversim profundius impressus. Elytra thorace non latiora, subparallela convexa, confertim sat grosse punctata, nigra densissime pubescentia, margine laterali angusto rubro ad medium subito dilatato, fasciam a sutura nigra interruptam, quæ tertiam partem elytrorum occupat, formante, minus dense pubescente margine utrinque nigerrimo.

11. *sphægeus*, *subelongatus*, *nigroæneus nitidus longius pubescens*, *fronte cinerea*, *elytris rugose punctulatis fascia ad medium densissime cinereo pubescente*, *apiceque cinerascente*, *abdomine sanguineo.* Long.  $4\frac{1}{2}$  lin.

Fabr. Syst. El. i., 280. Kl. 298. Spin. i., 270, tab. 27, fig. 4.

Habitat in Territorio Missouriensi et Oregonensi.

12. *arachnodes*, "*æneus pubescens nitore metallico splendens*, *elytris cinereo fasciatis apice cinerascente abdomine pedibusque rufis.*" Long.  $3\frac{1}{2}$  lin.

Klug, 298. Spin. ii., 137, tab. 3, fig. 2.

Præcedenti similis at minor et latior. Mihi ignotus.

13. *viduus*, "*supra æneus, subtilis rufus, elytris nigro-bimaculatis.*" Long. 4 lin.

Klug, 298. Spin. tab. 27, fig. 3.

*Clerus erythrogaster* Spin. i., 272. Mihi ignotus.

14. *truncatus*, *niger pubescens*, *fronte cinerea*, *elytris macula apicali usque ad trientem secundum dense cinereo-vestita*, *antice ad suturam late prolongata recteque truncata*, *abdomine rufo*. Long.  $4\frac{1}{2}$  lin.

Habitat ad Sta. Fe Novæ Mejico. D. Fongler collegit.

Statura *C. sphegeo* paulo latior, *niger dense pubescens*. Caput pube longa cinerea obtectum. Thorax lateribus rotundatis antice profundius impressus, subtilissime punctulatus, Elytra humeris prominulis rugose punctulata, macula magna apicali antice late prolongata, mox pone medium recte truncata, densius cinereo-pubescente. Subtus *niger abdomine sanguineo*.

*b. DEPRESSI.*

15. *thoracicus*, *subdepressus*, *elongatus*, *nigro-violaceus*, *pubescens*, *thorace parce punctulato rufo*, *medio nigro*, *elytris confertim subseriatim punctatis*. Long.  $2\frac{1}{2}$ — $3\frac{1}{4}$  lin.

Oliv. Ent. iv., 76, 18, tab. 2, fig. 22. Kl. 306. Spin, i., 274, tab. 27, fig. 3.

*Thanasimus monilis*, Mels. Pr. Ao. ii., 307.

Habitat ubique in quercus folia minus frequens. Variat pedibus antennisque plus minusve flavis.

16. *nigrifrons*, *subdepressus*, *niger nitidus*, *parum pubescens*, *capite thoraceque rufis*, *hoc subtiliter punctulato*, *lateribus parum rotundato*, *elytris punctulatis fascia ad medium alteraque ante apicem albidis*, *apice vix cinerea*, *basi rufescentibus*. Long.  $2\frac{1}{2}$  lin.

Say, Journ. Ac. iii., 190. Kl. 335.

Sequenti longior, minor, minus punctatus, nitidior, abdomineque nigro distinctus. Habitat Novæboraci minus frequens.

Variat fronte, thoracisque disco utrinque infuscatis; capite quoque thoraceque nonnunquam totis nigris.

17. *nigripes*, *subdepressus rufus, pubescens, capite thoraceque confertim punctulatis, illo linea frontali sublevi, hoc lateribus rotundato, elytris confertim punctatis nigris fascia ad medium alteraque ante apicem albidis, apice cinerascete, basi rufis, antennis postpectore pedibusque nigris.* Long.  $2\frac{1}{2}$ — $3\frac{1}{2}$  lin.

Say, Journ. Ac. iii., 191. Klug, 293. Spin. i., 263, tab. 26, fig. 3.

Clerus dubius † Spin. i., 264, tab. 25, fig. 4. (Var. fronte nigro.)

Variat capite thoraceque nigris, elytrorum basi vix rufa.—

C. *rufiventris* † Dej: Spin. tab. 23, fig. 3.

Habitat in provinciis mediis et borealibus frequens.

† 3. *Depressi, thorace antice subito parum constricto, profundius impresso, antennis apicem versus vix incrassatis, articulis discretis; palpis unguibusque sicut in † 2.*—*THANASIMUS* Spin.

18. *trifasciatus, rufus pubescens, elytris basi varioloso punctatis, fascia cinereo-marginata, lata dentata ad medium apiceque nigris, fascia intermedia lata dentata cinerea, antennis pedibusque nigris.* Long.  $4\frac{1}{2}$ —6 lin.

Say, Journ. Ac. v. 175. Klug, 293.

Habitat in Vermont, minus frequens. D. Adams benevole dedit.

19. *dubius, rufus pubescens, thorace linea longitudinali impresso, dense punctulato, elytris confertissime subtiliter punctulatis, nigris fasciis 2 cinereo-albidis dentatis, antica angusta, versus basin rufis, seriatim punctatis.* Long. 4 lin.

Fabr. Syst. El. i., 280. Klug, 292.

*Thanasimus ruficeps* Spin. i., 189, tab. 14, fig. 2.

Habitat ubique sat frequens.

20. *undatulus*, *rufus*, *pubescens*, *capite obscuro*, *thorace minus dense punctato*, *linea longitudinali impresso*, *elytris confertissime punctulatis*, *nigris fasciis 2 cinereis postica vix dentata*, *paulo latiore*, *versus basin anguste rufis*, *fortius seriatim punctatis*, *postpectore nigro*. Long.  $3\frac{1}{2}$  lin.

Say, Bost. Journ. Nat. Hist. i., 163. Klug, 385.

Specimen unicum ad Lacum Superiorem inveni.

Præcedenti forma simillimus, sed thorace minus subtiliter parcius punctato, fascia elytrorum postica minus dilatata, postpectoreque nigro differt.

21. *nubilus*, *elongatus*, *minus depressus*, *niger*, *thorace minus dense punctato*, *elytris confertissime punctulatis*, *fasciis 2 cinereis undatis*, *postica latiore*, *versus basin fortius seriatim punctatis*, *abdomine pedibusque rufis*. Long.  $3\frac{1}{2}$ — $4\frac{1}{2}$  lin.

*Thanasimus abdominalis* || Kirby, Fauna Bor. Am. 244, tab. 2, fig. 5.

*Clerus nubilus* Klug, 386.

Habitat ad Lacum Superiorem sat frequens.

Species dubiæ, an hujus patriæ.

22. *sexguttatus*, "*niger fronte cinerascete, elytris maculis tribus albis*."

Fabr. Ent. Syst. 283. Syst. El. i., 280. Klug, 385.

23. *quadriguttatus*, "*niger, capite thoraceque rufis, elytris maculis 4 albis*."

Oliv. Ent. iv., 76, 18, tab. 2, fig. 23. Klug, 386.

24. *eximius* Mannerheim. Bull. Soc. Imp. Nat. Moscou. 1843, p. 248. California?

## HYDNOCERA Newman.

PHYLLOBÆNUS † Dej.

. CLERUS p. Klug.

Oculis prominulis, integerrimis, palpis labialibus elongatis, valde dilatatis, ligula emarginata, palpis maxillaribus apice acutis, antennis fere filiformibus, articulo ultimo majore globoso, tarsis 4-articulatis, unguibus basi late dentatis. Agiles, vitam degunt in folia.

1. *tricondylæ*, *elongata*, *olivaceo-ænea thorace postice subangustato, antice constricto, lateribus modice dilatato, elytris punctatis, abdomine non brevioribus, pedibus testaceis.* Long. 2 lin.

Habitat versus Mississippi scaturigines in pratis.

Statura elongata, Tricondylæ similis, olivaceo-ænea, nitida parce pubescens. Caput fere læve, antennis piceis. Thorax capite angustior, latitudine paulo longior, antice modice constrictus, lateribus medio dilatatis, rotundatisque dein recte parum retractis, subtilissimo parce rugosus. Elytra thorace non latiora, antice subangustata, convexiuscula, apice singulatim rotundata, minus dense grossius punctata. Pedes palpique testacei.

2. *subænea*, *obscuræ æneæ pilis erectis cinereis obsita, thorace breviusculo postice fere recte valde angustato, antice subito valde constricto, lateribus valde dilatatis, disco utrinque ad medium transversim leviter impresso, elytris sat dense punctatis, pilis in medio et ad apicem longioribus.* Long. 2—2¼ lin.

Hydnocera steniformis † Spin. ii., 144, tab. 40, fig. 2.

Hydnocera subænea Spin. ii., 51.

Habitat in provinciis mediis et borealibus; unguibus unidentatis a Clero steniformi Klugii differt, qui in descriptione sua ungues simplices memorat, (l. c. 312.)



3. *unifasciata*, *elongata*, *nigro-cyanea*, *pilis cinereis obsita*, *thorace breviusculo*, *postice subsinuatim valde angustato*, *antice subito valde constricto*, *lateribus valde subacute dilatatis*, *rugoso*, *elytris grosse confertim punctatis*, *fascia media angusta argenteo-pilosa*, *antennis tarsisque testaceis*. Long. 2 lin.

*Clerus unifasciatus* Say, Journ. Ac. v., 176. Klug, 390.

*Hydnocera punctata* Spin. ii., 54, tab. 40, fig. 4.

Specimen unicum in Ohio lectum benevole dedit Dom. Schaum.

4. *humeralis*, *purpureo-nigra*, *longius pubescens*, *thorace breviusculo*, *postice sinuatim angustato*, *antice subito valde constricto*, *lateribus fere acute tuberculatis*, *rugoso*, *parceque punctato*, *medio lævi*, *elytris confertim punctatis*, *humeris late*, *antennisque rufis*, *pedibus vel rufis vel nigris*. Long. 2—2½ lin.

Newman, Charlesworth's Mag. iv., 362. Spin. ii., 44, tab. 39, fig. 2.

*Clerus humeralis* Germ. Ins. Nov. i., 80. Say, Journ. Ac. iii., 192. Klug, 312.

Variat, 1. *apice elytrorum rufescente*.

2. *elytris immaculatis*.

α *pedibus nigris*.

β *pedibus rufis*.—*H. rufipes* Nm. l. c. 363.

Habitat ubique in sylvas quercinas.

5. *difficilis*, *nigro-cyanea minus pubescens*, *thorace breviusculo*, *postice sinuatim angustato*, *antice subito valde constricto*, *lateribus rotundatim tuberculatis rugose punctato*, *medio lævi*, *elytris grossius punctatis*. Long. 2½ lin.

Habitat ad Lacum Superiorem.

Præcedenti simillima, sed nitidior, et thoracis tuberculo magis rotundato, elytris minus confertim punctatis distincta

videtur. Nigro-cyanea, nitida, minus pubescens. Caput thoraxque nigro-ænea, rugose punctata, hic latitudine paulo brevior, antice subito valde constrictus, impressione autem mediocri, lateribus sinuatis, in medio rotundatim dilatatis, disci medio sublævi. Elytra parallela, humeris prominulis, sat dense grossius punctata apice singulatim rotundata, serrataque; pedes nigri antennarum basi tarsisque testaceis.

6. *cyanescens*, *nigro-cyanea*, *pubescens*, *thorace breviusculo*, *subtiliter rugoso*, *antice subito valde constricto*, *profundeque impresso*, *lateribus sinuatis medio rotundatim dilatatis*, *ad medium leviter transversim impresso*, *elytris confertim grossius punctatis*, *antennis pedibusque anticis testaceis*. Long.  $2\frac{1}{2}$  lin.

Habitat in Marylandia, ad montes.

Præcedentibus duabus similis, thorace vero, antice non solum constricto, sed valde impresso, distincta. Caput thoraxque subtiliter densius punctato-rugosa.

7. *pubescens*, *cyanescens*, *breviter dense pubescens*, *thorace breviusculo*, *antice subito constricto*, *impressoque*, *lateribus modice sinuatis*, *medio rotundatim dilatatis*, *elytris confertissime punctulatis*, *antennis pedibusque testaceis*, *posticis nigris*, *basi testaceis*. Long.  $1\frac{1}{2}$ —2 lin.

Habitat in Territorio Missouriensi.

Statura præcedentium trium; pube dense brevior, elytris confertissime punctulatis valde distincta. Thorax sicut in priore sed lateribus pone medium paulo minus sinuatis.

8. *pallipennis*, *elongata*, *nigro-ænea*, *pubescens*, *thorace latitudine fere longiore*, *antice constricto*, *impressoque*, *lateribus sinuatis medio rotundatim dilatatis*, *elytris sat dense grossius punctatis*, *pallidis*, *marginè*, *apice*, *sutura fasciaque media nigris*, *antennis pedibusque pallidis*. Long. 2 lin.

Clerus pallipennis Say, Journ. Ac. v., 176. Klug, 390.

*Hydnocera serrata* Nm. Char. Mag. iv., 363. Klug, 390.  
Spin. ii., 47, tab. 39, fig. 4.

Habitat ubique minus frequens. .

9. *verticalis*, *nigricans*, *capite testaceo linea frontali nigra*, *thorace latitudine fere longiore antice constricto, profundeque impreiso*, *lateribus parum sinuatis medio rotundatim modice dilatatis*, *elytris postice subangustatis, basi testaceis, grossius punctatis*, *antennis pedibusque pallidis*. Long.  $1\frac{1}{2}$ —2 lin.

*Trichodes verticalis* Say, Bost. Journ. i., 164.

*Clerus verticalis* Kl. 389.

*Hydnocera limbata* Spin. ii., 49, tab. 39, fig. 6.

Habitat in provinciis australibus et occidentalibus.

10. *curtipennis*, *elongata*, *nigra*, *pilosa*, *capite flavo*, *macula occipitali nigra*, *thorace longiusculo, antice paulo constricto*, *medio parum rotundatim dilatato*, *flavo-bivittato*, *elytris postice angustatis abbreviatis, grosse punctatis, flavis, apice nigris*, *antennis pedibusque flavis*. Long.  $1\frac{3}{4}$  lin.

Nm. Charlesw. Mag. iv., 364. Klug, 390.

*Clerus brachypterus* Klug, 313.

*Hydnocera lineaticollis* Spin. ii., 51, tab. 40, fig. 1.

Habitat in provinciis australibus.

11. *suturalis*, "*pubescens nigra, thoracis margine, maculaque utrinque rufis, pedibus coleopterisque punctatis pallidis, his liura suturali communi nigra.*" Long. 2 lin.

Klug, 313. Præcedenti certo affinis, mihi ignota.

12. *aegra*, "*gracilis elongata, rugose punctata, testacea, oculis tantum nigris, thorace latitudine fere duplo longiore.*" Long. .18, unc.

Nm. Charlesw. Mag. iv., 364. Mihi ignota.

13. *tabida*, *elongata pilosa, nigro-cyanca, antennis ore pedibusque flavis, thorace cylindrico, elongato, antice paulo constricto impressoque, lateribus parum dilatatis, subtiliter strigoso,*

*elytris paulo abbreviatis, sat dense punctatis.* Long.  $2\frac{1}{4}$ —3 lin.

Habitat in provinciis australibus et occidentalibus.

Linearis, parcius griseo-pilosa, nigro-cyanea. Caput impunctatum ore antennisque pallidis. Thorax latitudine duplo longior, cylindricus antice paulo constrictus, lateribus pone stricturam parum dilatatis, subtiliter strigosus, parceque punctatus. Elytra apice singulatim rotundata, abdomine parum breviora, sat dense minus subtiliter punctata. Pedes valde elongati, flavi, geniculis tarsisque nonnunquam infuscatis.

14. *longicollis, elongata nigro-cyanea, pilosa, antennis flavis, thorace latitudine sesqui longiore, cylindrico, antice transversim impresso, vix constricto, obsolete parce punctato, elytris sat dense punctatis apice angustatis, abdomine sesqui brevioribus, pedibus elongatis flavis.* Long.  $1\frac{1}{4}$  lin.

Ziegler, Pr. Ac. Nat. Sc. ii., 44.

Habitat in provinciis australibus et in Pensylvania; a Dom. Zimmermann amice data.

Variat elytris basi testaceis.

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#### PHYLLOBÆNUS Spin.

Oculis intus parum emarginatis, palpis filiformibus, antennis articulis 3 ultimis compressis, dilatatis, subtriangularibus, tarsis 4-articulatis, unguibus basi dentatis.

1. *dislocatus, niger, elongatus, pube erecta vestitus, thorace confertissime punctato, lateribus vix rotundato, elytris seriatim cribrato-punctatis, fusia subbasali curvata, altera undulata pone medium punctoque apicali flavis.* Long.  $1\frac{1}{2}$ —2 lin.

Enoplium dislocatum Say, Journ. Ac. v., 176. Klug, 394.

Phyllobænus transversalis Spin. ii., 4, tab. 40, fig. 6.

Enoplium (Epiphænus) distrophum Klug, 374.

Opilus? distrophus Mels. Pr. Ac. ii., 306.

Variat 1, fascia antica extus abbreviata.'

2, fascia antica punctoque apicali obsoletis.

Habitat ubique minus frequens.

### ICHNEA Laporte.

Oculis intus profunde emarginatis, palpis cylindricis, antennis articulis 3 ultimis longissimis, dilatatis, articulis ante illos indistinctis, tarsis angustis, articulo 4<sup>to</sup> indistincto, unguibus late dentatis. Victus in folia.

1. *laticornis*, *linearis*, *nigra*, *capite fulvo vittato*, *thorace fulvo marginato, punctulato, antice subconstricto, lateribus sinuatis, postice utrinque oblique excavato, elytris confertim seriatim grosse punctatis, punctis apice confusis*. Long 2¾ lin.

*Enoplum laticorne* Say, Bost. Journ. Nat. Hist. i., 164. Klug, 394.

Habitat in provinciis mediis minus frequens.

### ENOPLIUM Latr.

Oculis antice emarginatis, tarsis 5-articulatis, articulo, 4<sup>to</sup> minuto vix conspicuo, unguibus plus minusve dentatis, antennis articulis 3 ultimis dilatatis, compressis, triangularibus.

§ 1. Antennæ 10-articulatæ, palpi securiformes. *ENOPLIUM* Spin.

1. *quadripunctatum*, *nigrum, punctatum, elytris postice dilatatis, coccineis punctis 4 nigris, unguibus acute dentatis*. Long. 3 lin.

Say, Journ. Ac. iii., 188. Am. Ent. iii., 41. Klug, 367. Spin. i., 346, tab. 34, fig. 5.

Variat elytris immaculatis. Habitat in provinciis mediis et occidentilibus, a Dom. Melsheimer benevole datum.

§2. Antennæ 11-articulatæ, palpi securiformes, ungues vix dentati. PELONIUM Spin. Div. 2, α, a. Klug.

2. pilosum, nigrum, confertissime punctulatum dense pubescens, thorace roseo, vittis 2 latis nigris, versus basin oblique subsubito angustato, elytris antice subangustatis, punctis ad basin majoribus. Long.  $3\frac{1}{2}$  lin.

Say, Am. Ent. iii., 41. Klug, 360. Spin. i., 356, tab. 34, fig. 5.

Lampyris pilosa Forster, Ins. Nov. p. 49.

Variat, elytris sutura margineque flavis.

Enoplium marginatum Say, Journ. Ac. iii., 187.

Enoplium onustum Say, Am. En. iii., 41.

Enoplium cinctum † Dej. Cat.

Habitat ubique; varietas minus frequens occurrit.

3. vetustum, elongatum, piceum capite thoraceque confertim punctatis brunneo-pilosis, hoc inæquali, longiusculo medio dilatato, elytris parcius punctatis, punctisque ocellatis grossis parce cribratis, albidis, basi apiceque late brunneis nigro variegatis, pedibus flavo annulatis. Long. 5 lin.

Spin. i., 360, tab. 35, fig. 4.

Enoplium venustum Hald. Pr. Ac. Nat. Sc. iii., 126.

Priocera albomacula Ziegler, Pr. Ac. ii., 268.

Habitat in provinciis mediis et australibus rarissime, specimen unicum a Dom. Ziegler benevole datum.

4. oculatum, elongatum, nigrum, thorace grossius punctato, pone medium dilatato, lateribus subangulato, flavo, nigro bimaculato, elytris sutura margineque flavis, grossius seriatim punctatis, punctis versus apicem obsoletis, antennis basi pedibusque flavis, his geniculis fuscis. Long. 3 lin.

*Pelonium marginipenne* Spin. i., 363, tab. 35, fig. 6.

*Clerus oculatus* Say, Bost. Journ. Nat. Hist. i., 163: Klug, 387.

Habitat ubique rarissime.

§ 3. Palpi cylindrici, antennæ 11-articulatæ, ungues dentati; prothoracis sutura lateralis distincta. ORTHOPLEURA Sp.

5. *damicornæ*, cylindricum, nigrum, confertim punctatum, pilosum, thorace rufo, lateribus subsinuatis, angulis posticis obtusis, elytris usque ad medium minus subtiliter punctatis. Long. 3—4½ lin.

Say, Bost. Journ. i., 165. Klug, 358. Spin, ii., 80, tab. 42, fig. 4.

*Tillus damicornis* Fabr. Syst. El. i., 282.

*Enoplium thoracicum*, Say, Journ. Ac. iii., 188. Am. Ent. iii., 41.

Variat thorace margine infuscato. Habitat in provinciis mediis in lignariis.

6. *punctatissimum*, nigrum vel fusco brunneum, confertim punctatum, pilosum, thorace rufo, lateribus fere rectis, postice cum angulis rotundatis, his obsoletis, elytris usque ad medium minus subtiliter punctatis, fascia transversa pallida illuc notatis. Long. 4¾ lin.

Chevrolat, An. Ent. France, ser. 2<sup>da</sup> i., 34.

*Enoplium bimaculatum* Mels. Pr. Ac. Nat. So. ii., 307.

Habitat in Pennsylvania, Mus. Melsheimer.

### CORYNETES Fabr.

Oculis integris, palpis vel cylindricis vel parum dilatatis, antennis apice clavatis, clava compressa, 3-articulata, tarsis articulo 4<sup>to</sup> minimo inconspicuo, unguibus basi dentatis.

1. *rufipes*, *cyaneus*, *capite thoraceque punctatis nigropilosis*, *elytris punctulatis*, *basi punctato-striatis*, *antennis basi pedibusque rufis*. Long.  $2\frac{1}{2}$ —3 lin.

De Geer, Mem. v., 165, Tab. 15, fig. 4. Fabr. Syst. El. i., 186. Klug, 350.

*Necrobia rufipes*. Oliv. Ent. iv., 16, tab. 1, fig. 2. Spin, ii., 101, tab. 43, fig. 6.

Habitat ubique orbis terrarum. In Europa autochthon.

2. *ruficollis*, *rufus pilosus punctatus*, *elytris punctulatis*, *punctato-striatis*, *cyaneis basi rufis*, *ore antennis abdomineque nigris*. Long.  $2\frac{1}{2}$  lin.

Fabr. Syst. El. i., 286. Klug, 350.

*Necrobia ruficollis* Latr. Hist. Crust. et Ins. ix., 156. Spin, ii., 103, tab. 43, fig. 6.

Habitat ubique orbis terrarum. In Europa autochthon.

3. *marginellus*, "*Affinis C. discolor Klug. Ruber, elytris nigro cæruleis. Caput rubrum, thorax ruber punctulatus, Scutellum rubrum. Elytra nigro cærulea, ad marginem humeralem rubro fimbriata. Pedes rubri, nigro-geniculati*. Long. 5, lat. 2 millim. California an Mexicum?"

Chevrolat, An. Ent. France; ser. 2<sup>nda</sup> i., 42.

Mihi ignotus; descriptio pessima.

4. *violaceus*, *nigro cyaneus, pilosus, capite thoraceque confertim punctatis*, *elytris punctulatis*, *punctato-striatis*, *antennis pedibusque nigris*. Long. 2— $2\frac{1}{4}$  lin.

Fabr. Klug, 349.

*Dermestes violaceus* Lin. Syst. Nat.

*Necrobia violacea*. Oliv, Latr. Hist. Crust et Ins. ix., 156. Spin, ii., 105, tab. 44, fig. 1.



OPETIOPALPUS Spin.

1. *luridus* "*prothorace plus latiore quam longiore, scuti prothoracis lateribus integris, tarsorum unguiculis simplicibus.*" Long. 1 lin.

Spin, ii., 113, tab. 45, fig. 5.

Mihi ignotus, obscure testaceus, albido pubescens, punctatus, clava antennarum fusca.

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Genus *Paratenetus* (Spin, ii., 116) in hoc tribu inscriptum, coxis anticis parvis globosis, vix prominulis, prosterno pone coxas producto, corneo, clypeoque submarginato, valde discrebat. Beatus Erichson (Agass. Nom. Zool.) id cum *Tenebrionidis*, adjunxit; quo loco melius retineri possit nam tarsi a *D. Spinola* 4-articulati descripti, accuratius observati heteromeri videntur. De moribus nihil certum scio.

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*Mimus melanopterus.* By GEORGE N. LAWRENCE. Read 16th April, 1849. Plate 2.

BLACK-WINGED MOCKING BIRD.

Spec. character, light ash; beneath white; wings black; the two centre tail feathers black tipped with white; all the others largely marked with white.

Bill black, strong and much curved, upper mandible toothed near the point, legs and feet black; upper parts of a light ash grey, lighter on the rump and head; front hoary, a line of white runs from the bill over and beyond the eyes; a black line extends from the corner of the eyes to the bill; ear coverts dusky.

Primary quills and their coverts black, the base of the primaries margined with white, which is concealed by the coverts; a partial edging of white on three or four of the primaries which forms a narrow oblique mark when the wings are closed; the smaller wing coverts light ash, the

greater coverts, the secondaries and their coverts, brownish ash, tipped and bordered with white. Tail graduated, with the two central feathers black, tipped with white; the others black at the base for about half their length, terminating in pure white, the outer feathers being the most largely marked with it.

Under parts white, a little inclining to grey on the breast; a few long dusky spots on the thighs and on the sides under the wings. The male and female differ but little in plumage. Length 10 1-2 inches, wing from flexure 5 inches, bill along the ridge 7-8 in., from gap 1 1-8 in., tail 5 in., tarsus 1 1-4 in., middle toe and nail 1 1-8 in.

I have examined three specimens, all of which agreed in plumage. They were procured by Mr. Wm. Galbraith during the winter of 1845, in Venezuela, where he went for the purpose of making collections in Ornithology.

They were at that time in pairs and kept mostly in low bushes: their song consists of a succession of rather short interrupted notes. He supposed them to be our common mocking-bird (*M. polyglottus*) which they somewhat resemble, and of which he brought no specimens.

I feel well assured that the two species have been hitherto confounded, as different writers mention *M. polyglottus* as being found in South America. Mr. Nuttall has the following note to his description of that species.

"Mr. Litchfield informs me that the song of the mocking-bird is commonly heard in Venezuela, where of course it breeds and permanently resides."

The one now described is probably the bird alluded to in the above note; it may readily be distinguished from *M. polyglottus*, by the greater prevalence of white in the tail and the absence of the white band on the primaries; also by its stouter pure black bill and more rounded tail; it is likewise a larger and much handsomer bird, the colors being more pure, especially the white of the lower parts.

On the occurrence of the CASPIAN TERN (*Syloohelidon Caspius*) in North America.—By GEO. N. LAWRENCE. Read May 6th, 1850.

The similarity in color which prevails in this class of birds in all their changes of plumage, is a source of much difficulty in determining such as approach each other in size; it now appears that two distinct species found in the United States, have been recognized as the "*Sterna Cayana*" of Latham, whereas the existence of that species among our birds is now doubted.

Mr. Gambel, of Philadelphia, has described one of these, (in the Proceedings of the Acad. of Sciences of Dec., 1848,) under the name of "*Sterna Regia*," and remarks, "This noble species, so abundant on our southern coast, has for a long time been considered the *Sterna Cayana* of Latham."

The other is the subject of this communication. I have possessed specimens of these Terns for several years; both kinds were killed on the coast of Long Island. Others as well as myself heretofore considered them to be Cayenne Terns.

After reading Mr. Gambel's account of his *S. regia*, I examined my specimens more critically, and found the smaller of the two corresponded with his description; the other was much larger, exceeding it in length over two inches, although the tail measured one and a half inches less.

I took notes of its dimensions, &c., but deferred publishing an account of it, till I could investigate it more fully by a comparison with the Terns in the Philadelphia Academy.

Recently my attention was called to a fine specimen, received from the coast of New-Jersey by Mr. Nicolas Pike, of Brooklyn, which he considered identical with the Caspian Tern of Europe, as it corresponded with the description of that species in "Yarrell's British Birds."

Since then I have had an opportunity of seeing a specimen

### 38 *Occurrence of the Caspian Tern in North America.*

of the S. Caspius, from Europe, in the collection of the Phila. Academy, and on comparing the two, was satisfied of their identity.

This is an interesting addition to our ornithology, being the largest of the genus found in Europe as well as in the United States.

The geographical distribution of this species is very extended. It was first found by Pallas near the Caspian Sea, from which it receives its name; since in different parts of Europe; also at the Cape of Good Hope; and now in North America.

Adult male—Bill very stout, carmine red, paler at the point; forehead, top and sides of the head, and the nape of the neck greenish black, which color extends below the eye; a narrow white line runs under the eye for nearly its entire length; back and wings light bluish ash; the six outer primaries dark slate gray on their inner webs; the outer web of the first quill feather is white beneath for most of its length, those of the others greyish white; shafts strong and white; upper tail coverts and tail, greyish white and but little forked; neck all round and the whole of the under plumage pure white; legs and feet black. In winter, the head becomes mostly white, which is the only change from the summer plumage.

The white line under the eye, and the green reflection on the head, are not noticed in any of the English works I have seen, although they exist in the European specimens examined.

Total length  $21\frac{1}{2}$  inches; alar extent 51 in.; wing from flexure  $16\frac{1}{2}$  in.; bill from base  $2\frac{1}{2}$  in.; from corner of the mouth 4 in.; depth at base  $\frac{7}{8}$  in.; from prominent angle on lower mandible to point  $1\frac{1}{2}$  in.; tarsus  $1\frac{1}{2}$  in.; middle toe and claw  $1\frac{1}{2}$  in.; tail 6 inches.

The above description is taken from Mr. Pike's specimen, which is in remarkably fine plumage.

Description of a new species of *TYRANNUS*. By GEORGE N. LAWRENCE. Read June 3d, 1850.

*TYRANNUS CASSINI*.

CASSIN'S TYRANT FLYCATCHER. Plate III. fig. 2.

Specific character—Head and breast bluish ash; crown orange red; abdomen yellow; tail feathers with very broad webs.

Adult male—Bill black, base of the lower mandible dark horn color; head and neck bluish ash; a bright orange red spot on the top of the head, back ash grey, tinged with yellowish green; wings umber brown, the secondaries lightly margined with yellowish green; wing coverts and tertials of a lighter brown and edged with dull white; bend of the wing and under wing coverts yellow; upper tail coverts and tail brownish black, the tips of all the tail feathers and the outer webs of the exterior ones light cinereous brown; throat white, fore part of neck pale bluish ash, breast and sides of the same color intermixed with greenish yellow; abdomen bright yellow; lower tail coverts pale yellow; legs and feet brown. The five outer primaries abruptly attenuated, the first shorter than the sixth; the second, third, fourth and fifth nearly equal; tail even.

Length about 9 inches; bill from base  $\frac{2}{3}$  in.; wing from flexure  $5\frac{1}{4}$  in.; tail  $4\frac{1}{4}$  in.; tarsus  $\frac{2}{3}$  in.

The specimen herein described was obtained in Texas: the only other example that I have seen is in the Museum of the Acad. of Nat. Sci., Phila.; it was in the Rivoli collection, purchased at Paris by Dr. T. B. Wilson, and came erroneously labelled "*Tyrannus verticalis*."

Of the particular habits of this species I can give no information.

This species is closely allied to the Arkansas Flycatcher, (*T. verticalis*,) and resembles it both in size and the general distribution of colors, but is of a darker color on the head and breast, and has a much larger and stronger bill. The *T. verticalis* also differs in having the tail somewhat forked, and the outer webs of the lateral feathers yellowish white.

I have named it in honor of Mr. John Cassin, of Philadelphia, whose devotion to the science of Ornithology is well known.

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Description of a new species of HELINAI. By J. P. GIRARD, Jr. Read Oct. 8th, 1850.

HELINAI BREVIPENNIS.

SHORT-WINGED SWAMP WARBLER. Plate

SPECIFIC CHARACTER. Wings comparatively short, much rounded.

Head and hind-neck blue; wings and tail brown, their outer webs, back and wing-coverts bright olive. Sides of the head, neck and all the lower parts yellowish brown, lighter on the abdomen.

Length of wing from flexure 2 in.; of the tail, which is deeply emarginate,  $1\frac{1}{2}$  in.; tarsi  $\frac{1}{2}$  in.; bill from the base  $\frac{3}{4}$  in.

Total length, from point of the bill to the end of the tail,  $4\frac{1}{2}$  in.

Inhabits Mexico and Texas.

Descriptions of new species of PARTULA and ACHATINELLA.

By C. B. ADAMS, Professor of Zoology, &c., in Amherst College. Read before the New-York Lyceum of Natural History, Oct. 21st, 1850.

**PARTULA DIMINUTA.** Shell rather thick, ovate-conic ; translucent, horn-colored, sometimes reddish, with a thin shining brownish horn-colored epidermis, which is much interrupted by transverse stripes ; with the tip white ; with unequal, irregular, rather coarse transverse striae, and numerous excessively minute impressed spiral lines ; apex subacute ; spire rather short, with the outlines slightly curvilinear ; whorls five, a little convex, with a moderately impressed suture ; last whorl moderately oblique : aperture rather small, subovate, with a tubercle on the middle of the intruding part of the last whorl : lip much thickened, but narrow, with a regularly rounded surface : umbilicus small.

Mean divergence  $58^{\circ}$  ; length .63 inch ; greatest breadth .36 inch ; least breadth .3 inch ; length of the aperture .23 inch : the corresponding dimensions of another specimen are  $60^{\circ}$  ; .525 inch ; .28 inch ; .32 inch ; .21 inch.

*Hab.* — ?

This species resembles a variety, (*P. auriculata* Brod.,) of *P. Otaheitana* Brug., but is more slender, as well as smaller.

**ACHATINELLA MAGNA.** Shell thick, ovate-conic, elongate : blackish brown at the apex, reddish brown on the middle whorls, and ash-colored on the lower whorls : with unequal, irregular, very coarse transverse striae, with close-set transverse arcuate ribs near the apex, and some indistinct raised spiral lines on the lower part of the last whorl : apex subacute : spire rather long, with the outlines quite curvilinear : whorls seven, rather convex, with a well-impressed suture ; last whorl

obtusely angular : aperture ovate, acute above, with an extremely thick deposit on the inner side, with a very large compressed columellar fold.

Mean divergence  $50^{\circ}$  ; length 1.33 inch ; breadth .7 inch ; length of aperture .61 inch.

The unique specimen which has served for this description is somewhat faded, and the lip probably is not quite mature, being sharp.

*ACHATINELLA TAPPANIANA*. Shell reversed, elongate ovate-conic : pure white, with one narrow brown spiral band on the periphery of the last whorl : with very unequal and irregular transverse striae, and numerous excessively minute wrinkled spiral impressed lines : apex subacute : spire elongate, with the outlines a little curvilinear : whorls nearly seven, moderately convex, and more or less subangular, margined above, with a well impressed suture : aperture ovate ; lip well thickened within the margin, expanded much anteriorly but not above ; columellar fold strong.

Mean divergence  $43^{\circ}$  ; length 1.06 inch ; breadth .55 inch ; length of aperture .44 inch.

Var. *dubiosa* differs in being a little more ventricose ; its whorls are not margined above, and the brown stripe is replaced by two fine paler brown lines, below which one or two other yet finer lines may be seen.

*Habitat*, Sandwich Islands.

This beautiful species is named in honor of Hon. Benjamin Tappan, of Ohio.

*ACHATINELLA DIMONDI*. Shell reversed, thick, long ovate-conic : dingy white or very pale yellowish brown, with a blackish margin to the aperture when mature ; with a greenish black fugacious epidermis : with the transverse striae rather slight, very unequal and irregular, without spiral striae : apex subacute : spire rather long, with the outlines moderately



curvilinear : whorls nearly seven, quite convex, with the suture well impressed ; last whorl often somewhat flattened on the middle : aperture subovate, with the columellar fold well developed, with the deposit on the inner side very thin ; labrum sharp, not reflected, well thickened within.

Mean divergence  $45^{\circ}$  ; length 1 inch ; breadth .5 inch ; length of aperture .38 inch.

Variety (?) *lata* has a divergence, in a specimen about two-thirds grown, of  $55^{\circ}$ .

*Habitat*, Sandwich Islands.

This fine species is named in honor of Mr. Henry Dimond, of Honolulu, to whom I have been much indebted for the shells of these islands.

**ACHATINELLA DECEPTA.** Shell rather thick, ovate-conic, much elongated : dingy white or very pale yellowish brown ; with a dark brown or greenish epidermis, which is interrupted more or less in transverse stripes, and often terminates abruptly on the periphery of the last whorl : with irregular transverse striae ; without spiral striae : apex subacute : spire long, with the outlines moderately curvilinear : whorls nearly seven and one-half, rather convex, with a well impressed suture ; last whorl rather small : aperture small, ovate ; lip sharp, not expanded, moderately thickened within ; columellar fold moderately developed.

Mean divergence  $38^{\circ}$  ; length .72 inch ; breadth .33 inch ; length of aperture .25 inch.

This shell is figured by Mr. Reeve (Icon. f. 42 *a*, non 42 *b*) as a variety of *A. rubens* Gould. We think it is entitled to specific rank. It is usually more slender, and always more conical and less ovate, the last whorl being shorter, and not so regularly rounded, and the outlines of the spire being much less curvilinear. *A. rubens*, always retaining its more regularly rounded outlines, varies in its proportions in extreme

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varieties from .76 inch : .35 inch to .64 inch : .4 inch. The dimensions of Dr. Gould's type, .75 inch : .4 inch, are most common.

*ACHATINELLA MODESTA.* Shell rather thick and short, ovate-conic : dingy reddish or ash brown ; more or less covered with a dingy dark brown epidermis : with fine irregular transverse striae, which are coarser on the upper whorls ; without spiral striae : apex subacute : spire short, with the outlines quite curvilinear : whorls six, moderately convex, with a well impressed suture ; last whorl rather ventricose : aperture ovate, somewhat acute above ; lip sharp, not expanded, moderately thickened within ; columellar fold well developed, quite oblique.

Mean divergence  $50^{\circ}$  ; length .54 inch ; breadth .3 inch ; length of aperture .26 inch.

The corresponding dimensions of another specimen are— $47^{\circ}$  ; .55 inch ; .29 inch ; .24 inch.

*Habitat*, Sandwich Islands.

*ACHATINELLA REEVEI.* Although the name *Achatinella radiata* Pfr. appears in Dr. Pfeiffer's Hel. Monog. as a synonyme of *A. viridans* Migh., yet Mr. Reeve, in his beautiful monograph of this genus, has represented this species under the name of *A. radiata*, and has given another species with Dr. Mighels' name. Dr. M. and myself about the same time received this very distinct species, and having seen it in his collection, I cannot doubt the correctness of Dr. Pfeiffer's synonymy. Some other specimens before me appear to be very exactly represented by Mr. Reeve's figure of *A. viridans*, and are most nearly allied to a group consisting of *A. pulcherrima* Swains., *A. castanea* Rv., *A. abbreviata* Rv., &c. I propose for Mr. R.'s *A. viridans* the name which stands at the head of this paragraph.

**Descriptions of NEW SPECIES AND VARIETIES OF SHELLS, which inhabit JAMAICA. By C. B. ADAMS, Professor of Zoology, &c., in Amherst College. Read before the New-York Lyceum of Natural History, Oct. 21st, 1850.**

The following descriptions are in continuation of the CONTRIBUTIONS TO CONCHOLOGY, which were published by the writer in seven numbers, from Sept. 1849 to April 1850. They comprise the more important of the undescribed types of the land and fresh water shells of Jamaica, which are accumulating for a proposed monograph of the land and fresh water shells of that island, and such of the marine species as are believed to be undescribed.

I take this opportunity to explain that three species of the land shells of Jamaica had received the names of persons, both in the original manuscript descriptions, and in labels with which specimens were distributed. But at the request of the late lamented Dr. Binney, whose name had been used, and who deemed it inexpedient to name species in this manner, other names for these species were substituted, as the article went to press. Unfortunately the first names, taken from the labels, were published by Dr. Pfeiffer. These are now supposed by some writers to have priority; but by attention to the dates, it will be perceived, that the names published in the Proc. Bost. Soc. Jan. 1845, have priority. They were in fact published before the shells could have been received in Europe. I can only regret having thus inadvertently caused the existence of synonymes. The following are the species:

*Cyclostoma pulchrius* Ad.; Syn. *C. Binneyanum* Pfr.

*Cylindrella nobilior* (Pupa) Ad.; Syn. *C. Binneyana* Pfr.

*Helix arboreoides* Ad.; Syn. *H. Haldemaniana* Pfr.

In the same article, *Achatina Griffithii* was erroneously

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written *A. Griffithsii*. As this was merely an error in orthography, there can be no objection to the use of the name as elsewhere correctly written.

In the following descriptions of operculated land shells, the opercula are not described, except when important for the diagnosis of the species. We agree with M. Petit, (*Journ. de Conch.* 1850, p. 39,) who does not find in the opercula of *Cyclotoma* characters of sufficient importance to establish genera. Certainly they have not sufficient intrinsic value, and it is yet to be shown that they are always expressive of generic differences in the soft parts of these animals. A similar opinion has been expressed by Mr. Redfield, in his catalogue of operculated land shells. Specific differences, however, are often well defined in the opercula.

**MARGINELLA GRACILIS.** Shell between fusiform and cylindric, slender : white, with three spiral bands of orange brown, of which the upper one appears on the spire, a part of the middle one is seen in the deflection of the suture in the last part of the penult whorl ; the middle band is sometimes indistinct : smooth and shining : apex rather obtuse : spire moderately lengthened, with the outlines quite curvilinear : whorls nearly four, moderately convex, with the suture not very distinct ; last whorl long : aperture long and narrow ; lip moderately thickened, slightly incurved ; varix slightly extended on the penult whorl ; with four very oblique plaits.

Length .26 inch ; greatest breadth .09 inch ; least breadth .075 inch ; length of aperture .175 inch.

This species resembles *M. avena* Val., (*M. varia* Sowb.,) but is much smaller, and much more slender, and has a longer spire.

**BUCCINUM PULCHELLUM.** Shell ovate fusiform : pale yellowish brown, with the spiral ridges dark reddish brown, ex-

cept on the upper whorls : with twelve spiral prominent cord-like ridges, half of which appear on the spire, decussated by much less prominent regular transverse ridges, with the intersections well developed into nodules : apex acute : spire with the outlines moderately curvilinear : whorls five, rather convex, with the suture moderately impressed ; last whorl but little ventricose : aperture rather narrow and sinuous ; lip slightly thickened, not denticulate within, (in old shells ?) with the notch of medium size.

Mean divergence about  $40^{\circ}$  ; length .145 inch ; breadth .06 inch ; length of aperture .06 inch.

Of *Pleurotoma albella* Ad., (Cont. to Conch., p. 63,) a variety is wax-colored at both extremities, and has irregular spiral lines of the same on the lower part of the whorls.

**VALVATA INCONSPICUA.** Shell subdiscoidal : pale horn color ? with the striae of growth microscopic : spire convex, moderately elevated : whorls three, very rapidly increasing, with a deep canaliculate suture : aperture large, not much advanced above : umbilicus about half as wide as the penult whorl.

Greatest breadth .07 inch ; least breadth .05 inch ; height .04 inch.

**PLANORBIS HUMILIS.** Shell subdiscoidal : color — ? with coarse striae of growth : apex and spire moderately depressed on the right side : whorls two and one-half ; last whorl with a very acute periphery nearly in the plane of the spire, moderately dilated around the umbilical region : aperture large, subtriangular, acutely angled at the periphery of the last whorl : umbilical region abruptly excavated, with the concavity about two-thirds as wide as the last whorl.

Greatest breadth .06 inch ; least breadth .045 inch ; height .025 inch.

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Probably the specimens before me are immature, but the species is quite distinct from any other.

Of *Planorbis dentiferus* Ad., (Proc. Bost. Soc. Jan. 1, 1845,) a variety occurs, which is destitute of teeth! After a careful examination of many specimens, I am unable to find any other differences constantly associated with this peculiarity. Many of the toothless shells are more compressed obliquely just below the periphery, than the type, but the same is true of some of the shells in which the teeth are well developed. It is not a *local* variety, both kinds occurring together at Hatfield, in Westmoreland. The variety may be designated by the name EDENTATUS.

ANCYLUS OBLIQUUS. Shell subovate, somewhat arcuate, very convex: translucent, pale horn color: extremely thin, with microscopic radiating raised lines, and less distinct striae of growth: apex very prominent, elevated, extending very far to one side and posteriorly, and projecting nearly over the margin.

Length .075 inch; breadth .05 inch; height .028 inch.

This remarkable shell may belong to a new genus, but without the soft parts, it is difficult to determine the generic value of its peculiarities. The shell is hitherto unique in the rich collection of the Hon. Edward Chitty, to whom I am indebted for the loan of it.

TRUNCATELLA MODESTA. Shell much elongate, ovate conic: yellowish horn color, with a white upper margin of the whorls: with about twenty-one prominent compressed ribs, and numerous spiral striae, which are interrupted by the ribs: apex truncate with the loss of — whorls: spire with the outlines somewhat curvilinear: whorls remaining after truncation seven, moderately convex, margined above: aperture subovate, slightly angulated anteriorly.

Length (after truncation) .175 inch ; breadth .06 inch ; length of aperture .045 inch.

**HELICINA NOBILIS.** Shell depressed globose conic, thick and solid : white beneath and at the end of the last whorl, otherwise rufous or dark brownish red : very smooth, the striae of growth being very light ; sometimes with a few very light spiral striae : apex obtuse : spire convex conic : whorls nearly four and one-half, subplanulate, with a rather deep suture ; last whorl much depressed or even sinuate between the periphery and suture at its termination : aperture compressed above, expanded laterally : lip rather thick, moderately reflected along the middle only ; with a notch like that of *H. maxima* Sowb.

Mean divergence  $130^{\circ}$  ; greatest breadth .9 inch ; least breadth .73 inch ; height .55 inch.

This species differs from *H. maxima* in the flattening of the whorls, which renders the spire conic ; in the compression of the aperture from above, and the slight reflection of the lip ; it is also more solid and less convex beneath.

**HELICINA HIRSUTA.** Shell depressed globose, rather thin : brownish red, with an hirsute brown epidermis, having long hairs in six spiral lines, of which one is next below the suture and the others are on the middle and lower parts of the last whorl : with the striae of growth lightly impressed : apex rather obtuse, slightly mucronate : spire with the outlines much curved : whorls nearly five, slightly planulate, with a well impressed suture : aperture rather large, semi-elliptical ; lip rather thin and sharp, but well reflected so as to form a canal behind ; with the slit not very deep, but wide.

Mean divergence  $110^{\circ}$  ; greatest breadth .59 inch ; least breadth .48 inch ; height .04 inch.

The slit has about the same proportions as in *H. Hollandi*,

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having less depth and a greater width than in *H. palliata* and *H. Brownii*. Except in its greater size, it very closely resembles the former species, which however wants the spiral lines of long hairs in the epidermis. The operculum of this species is much smoother. I adopt the name suggested by Mr. Chitty.

A variety of *Helicina palliata* occurs, in which the lip is excessively thickened both externally and internally, contracting the aperture. It may be designated by the name of **LABIOSA**. It is a local variety.\*

A variety of *Helicina maxima* is remarkable for its pale lemon yellow color; it may be designated by the name of **CITRINA**. The usual color of this species, under the epidermis, is the same as that of *H. nobilis*, (see above,) with less of white.

A variety of *Helicina ampliata* in the collection of Mr. Chitty is of a greenish yellow color, with a broad spiral band nearly covering the upper whorls, where it is dark reddish brown, occupying the lower part of the middle whorls where it is of a brownish slate color, and gradually becoming paler, and at length on the last whorl of a red color.

**HELICINA CONSANGUINEA.** Shell subglobose, moderately thick: dark brownish red, with the lip white; with a somewhat hirsute epidermis, having the projecting points spirally arranged: with the striae of growth quite distinct: apex obtuse: spire with the outlines much curved: whorls five, moderately convex, with a well impressed suture: aperture semi-orbicular; lip sinuous above, moderately thickened and sharp, but well reflected except at the extremities; with the slit broad and shallow.

\* Dr. Holland remarks, "The *H. palliata* found about here [Bethany, Manchester] never has such a thickened lip: [the same is true at Marlboro, Manchester C. B. A.]: but *all* the specimens from Maidstone (our station on the mountain opposite to Bethany) are of this description."



Mean divergence  $110^{\circ}$ ; greatest breadth .6 inch; least breadth .05 inch; height .45 inch.

The slit, or notoh, as it might be called with equal propriety, is uniform in all the specimens before me. In this, as in most other characters, the species is intermediate between *H. hirsuta* and *H. albolabris*. It occurs in the parish of Westmoreland, the west part of the island.

Some specimens from the opposite extremity of the island, St. Thomas in the East, closely resemble *H. consanguinea*, except in having the aperture well dilated and rounded in the upper part, instead of being contracted by a sinus in the lip; they also have the notch a little deeper, and the last whorl is a little more convex beneath. The shell also is much like *H. hirsuta*, but the slit is not so deep, and the aperture is longer and narrower. They present a distinct type, but I merely propose for it the name of *SOROR*, without deciding whether it be of specific value.

*HELICINA MICROSTOMA.* Shell globose conic, moderately thickened: "brown, shaded off to a smoky white along the suture" and on the periphery of the last whorl: with rather light striae of growth, in which are a few spiral series of punctures: apex obtuse: spire with the outlines more or less and not uniformly curvilinear: whorls rather less than five, moderately convex, with a well impressed suture; last whorl subplanulate beneath: aperture semi-elliptical, compressed above and below, laterally dilated; with the lip sinuate, well expanded and reflected except at the extremities; with the slit not very deep, rather wide.

Mean divergence  $60^{\circ}$ ; greatest breadth .65 inch; least breadth .52 inch; height .4 inch.

The slit is about as deep as in *H. consanguinea*, but the sides are less divergent. The punctate spiral series indicate spiral lines of hairs on the epidermis. For two faded speci-

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mens I am indebted to Mr. Holland, who has one fresh shell, the color of which he describes as quoted above, and as faintly indicated in the best of the specimens before me. In form it approaches more nearly to *H. ampliata* and *H. Jamaicensis* than any of the group, which is characterised by an anterior notch or slit in the margin of the aperture.

I am indebted to Mr. Holland for a variety of *Helicina depressa* of extraordinary size. Its mean divergence is  $140^{\circ}$ ; greatest breadth .33 inch; least breadth .28 inch; height .18 inch. The corresponding dimensions of an ordinary specimen are  $140^{\circ}$ ; .24 inch; .2 inch; .125 inch. It may be designated by the name of *VALIDA*.

A variety of *Trochatella Josephinae*, from the western part of the island, presents a type quite distinct from that which served for the description of the species, and which inhabit the eastern part. The spiral ridges are less conspicuous, and are more or less interrupted by various irregularities of the surface. The acute periphery is furnished with very prominent vaulted compressed scales, and is of a red color. The inferior surface is of a lemon yellow color, and its spiral striae are rather indistinct. The lower part of the lip is quite thick. This type may be designated by the name of *PULCHRA*. Its mean divergence is  $100^{\circ}$ ; height .29 inch; greatest breadth .52 inch; least breadth .44 inch.

Of *Trochatella Tankervillii* several types appear quite distinct in extreme specimens, but graduate into each other by innumerable intermediate varieties. In one type, variety *a*, the spiral ridges are stronger, and the other irregularities of surface are less developed. The last whorl is more convex on both sides of the periphery, which is consequently less acute. This variety approximates most nearly to *T. pulchella* in form and size.

In a second type, variety  $\beta$ , the shells are more rugose and scabrous, but thinner. They are usually of small or medium size, and are the most richly colored. A modification of this type sometimes occurs with a more elevated spire.

In a third type, variety  $\gamma$ , the sculpture is more like that of the first, but the outline is more angular, and the shell attains a great size. The colors are not as vivid as in variety  $\beta$ .

The figure in Sowb. Thes. (pl. I. fig. 17) is more angular, and has a more elevated spire than any of the shells which I have seen.

The following are the dimensions of these varieties :

Var. $\alpha$ , mean div.	91°	height	.53 inch	great. br.	.63 in.	least br.	.5 in.
" $\beta$ , 1, "	" 97°	"	.51 "	"	.67 "	"	.50 "
" 2, "	" 90°	"	.62 "	"	.70 "	"	.56 "
" $\gamma$ , "	" 98°	"	.80 "	"	.98 "	"	.79 "
Fig. in Sowb. Thes.	80°	"	.82 "	"	.80 "	"	?

2 CYCLOSTOMA SAGITTIFERUM. Shell elongate, ovate conic : dingy white, with numerous inequidistant dark brown zigzag lines, with the four angles which are directed backwards arranged in spiral series on stripes of paler brown ; with irregular transverse spots of dark brown next below the suture : with very crowded fine transverse ridges, which interrupt minute spiral elevated lines : apex truncate, with the loss of — whorls : spire rather long, with the outlines curvilinear : whorls remaining after truncation four, quite convex, with a well impressed suture : aperture obliquely ovate, with two peritremes ; of which the outer one is moderately produced and not reflected posteriorly, but in the rest part is well produced, reflected nearly into the plane of the aperture, sinuous on the left side anteriorly ; inner peritreme thick, moderately produced, slightly reflected : umbilicus very narrow, extending through the truncate summit.

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For this species I am indebted to Mr. Chitty. It was found at Easington, in the parish of St. David's.

Mean divergence about  $45^{\circ}$ ; length .96 inch after truncation; greatest breadth .63 inch; least breadth .55 inch.

**CYCLOSTOMA LAMELLOSUM.** Shell ovate conic, rather short: with several inequidistant unequal more or less interrupted spiral lines of brown, of which four or five appear on the penult whorl: with rather closely set sharp elevated transverse lamellæ, which are more prominent at the sutures; without spiral striæ, except a few ridges in the umbilicus: apex truncate with the loss of two or three whorls: spire with the outlines quite convex: about three and one-half whorls remaining, very convex, with a rather deep suture: aperture orbicular, with two peritremes, of which the outer one is narrow, auriculate above, reflected nearly into the plane of the aperture; the inner peritreme is rather stout, well produced, a little reflected. The operculum has a spiral lamella, which has about four and one-half whorls, and is but little elevated and much produced laterally.

Mean divergence about  $50^{\circ}$ ; length after truncation .49 inch; greatest breadth .4 inch; least breadth .34 inch.

This shell much resembles *C. tectilabre*, but the outer peritreme is more expanded, and the margin of the operculum is not reflected backwards.

**CYCLOSTOMA SIMULANS.** Shell long ovate conic: very pale brown or dingy white, with numerous spiral series of small dark brown spots, which are often elongate, and which are arranged in inequidistant transverse stripes: with closely set rather strong transverse raised lines and indistinct spiral striæ, moderately orenulate along the suture: apex truncate with the loss of — whorls: spire with the outlines moderately curvilinear: whorls remaining after truncation four or five, quite

convex, with a well impressed suture : aperture ovate orbicular, with two peritremes, of which the outer one is moderately expanded and reflected nearly into the plane of the aperture ; the inner one is moderately produced and reflected : umbilicus very narrow, but extending through the truncate summit.

Mean divergence about  $37^{\circ}$  ; length after truncation .54 inch : greatest breadth .34 inch ; least breadth .23 inch.

From Easington. At first sight this species appears like *C. Adamsi*, but is distinguished by being less elongated, by the spiral striæ, and by the double peritreme.

*Cyclostoma tenuistriatum* is frequently of a dingy white or very pale brown color.

*Cyclostoma modestum* Ad. (Cont. Conch.)

A variety of *Cyclostoma fimbriatulum* has the transverse ridges rather more numerous and regular than the type of the species, and at their intersection with the spiral ridges more or less developed into small opaque white tubercles : its outer peritreme is not so wide or scabrous, and is less strongly scalloped, and is less flattened. Its size is less than that of the type of the species. It is a local variety, occurring in the centre of Westmoreland, the most western parish, while the typical *C. fimbriatulum* occurs forty miles to the east, in Manchester, near the centre of the island. At the suggestion of Mr. Chitty, I propose for it the name of *ALBINODATUM*.

Another variety of the same species inhabits an intermediate region, the parish of St. Elizabeth's. Yet although geographically intermediate between the other two forms, it is by no means so in its characters. It is smaller than the var. *albinodatum*, has its peritreme narrower, and the transverse ridges are more numerous and regular, in these characters diverging yet farther from the type of the species. On the other hand, it diverges in the opposite direction, having the

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transverse ridges cross the spiral ridges with enlargement. We propose for it the name of *docens*, in allusion to its instructiveness on the question of the origin of varieties.

A specimen of *Cyclostoma lincina* from the mountains behind Spanish Town is remarkable for its size and the development of the outer peritreme. Its dimensions are—mean divergence  $54^{\circ}$ ; length 1 inch; greatest breadth .77 inch; least breadth .6 inch: transverse diameter of the aperture .3 inch, and including the peritreme .57 inch!

On pages 91 and 93 of Contr. Conch. two varieties of one species were accidentally published as distinct species, with the names of *C. nodulosum* and *C. granosum*. These varieties differ slightly. The name, *C. granosum*, having appeared in Mr. Redfield's catalogue, and being rather more appropriate, may be adopted to the exclusion of the other. Another variety of this species occurs, in which the last whorl is much detached from the penult whorl. It is also entirely destitute of the purplish brown color anteriorly. The two individuals, which we have received on loan from Mr. Chitty, make us acquainted with the operculum of this species. It has a spiral lamella, well elevated, of more than three whorls. The variety may be designated by the name of *ABERRANS*.

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*Analysis of the Group of Species of Cyclostoma, which is represented by C. JAMAICENSE CHEM.*

This group has been more or less known for nearly sixty years under the name proposed by Chemnitz. In March, 1843, Mr. Sowerby, (Proc. Zool. Soc. Lond. and Thes. Conch. I. p. 95, pl. 23, f. 10, 11,) described a second species under the name of *C. corrugatum*. Both species have been repeated by Dr. Pfeiffer in Küster's Cyclostomacea. During the pres-

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ent year Mr. Sowerby has described a third type under the name of *C. subrugosum*, (Thes. Conch. II. p. 161\*, pl. Suppl. 31 B. f. 308, 309.)

Having found some difficulty in identifying these species, I concluded first to study the shells themselves *and their opercula*, which are in my collection. Twenty types, which have seemed worthy of notice, are described below. Perhaps two or three of these may be due to accident or circumstances; but most of them are probably original types. Many of them are local. For the most part they are of less value than is usually assumed for a species.

1	<i>a.</i>	<i>a.</i>	} A.		
2	<i>b.</i>	<i>b.</i>			
3	<i>c.</i>	<i>c.</i>	} B.		
4	<i>d?</i>	<i>d.</i>			
5	} <i>e.</i>	} e. }	} C.		
6					
7	} <i>f.</i>				
8					
9	} <i>g.</i>				
10					
11					
12					
13	} <i>h.</i>	} <i>f.</i>	} D.		
14					
15	<i>i.</i>	} <i>g.</i>			
16	<i>j.</i>				
17	<i>k.</i>	} <i>h.</i>			
18	<i>l.</i>				
19	<i>m.</i>	<i>h.</i>			
20	<i>n.</i>	<i>i?</i>			

In the accompanying table we have endeavored to express the affinities and values of the types. In the first column the numbers corresponding to the types described. In the second column they are grouped under fourteen more comprehensive types, which are indicated by the italic letters. In the third

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column they are grouped under nine types, indicated by the Roman letters ; and in the fourth column, under four types, indicated by capitals.

Equivalent to the whole group thus constituted is a type, which appears in *C. suturale* Sowb. In the former case, the group is distributed, in the various subtypes, over most of the island. The latter occurs only in the western third of the island, and is very uniform in its characters.

If, following the example of some, we should regard all types, which are probably original, as requiring to be named and described as species, we should soon be involved in an endless labyrinth. There would be not less than fifteen species in this group ; the list of species of *Cyclostoma* inhabiting Jamaica would be swelled to hundreds ; and the terrestrial shells of that island would exceed a thousand species. We prefer to treat species as we do genera, and endeavor to make them of as nearly equal value as the diversified system of nature will permit. We have deemed it useful to present an illustration of the actual scheme of nature.

The nine types of the third order, in the foregoing table appear to be of about the mean value of ordinary species. It becomes necessary to assign them names. In the absence of the opercula, d and i may be omitted as doubtful. Mr. Sowerby's figure of the operculum of *C. Jamaicensis* accurately represents that of No. 18 ; and Küster's figure, the operculum of Nos. 16 and 17 ; all of which, notwithstanding some difference in the opercula, we had united in one species. Most of our specimens are rather too coarsely sculptured to correspond with the figures given by these authors. Variety 16', however, corresponds with great exactness to Mr. Sowerby's figure. We may therefore conclude that Nos. 16-18 belong to the Chemnitzian species. Our No. 1 approximates so exactly to Mr. Sowerby's figure of *C. corrugatum*, that we shall provisionally refer it to that species, although Küster's figure and



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the descriptions of both authors exclude an umbilical keel. No. 3 has the same general form as the figure of *C. subrugosum*, but wants the umbilical keel. This species we are unable to identify. The following nomenclature is proposed :

- No. 1. *Cyclostoma corrugatum* ? Sowb.
- 2. *Cyclostoma jugosum* Ad. sp. nov.
- 3. *Cyclostoma pallescens* Ad. sp. nov.
- 5-14. *Cyclostoma varians* Ad. sp. nov.
- 15. *Cyclostoma seminudum* Ad. sp. nov.
- 16-18. *Cyclostoma Jamaicense* Chem.
- 19. *Cyclostoma crassum* Ad. sp. nov.

It will be seen that we have made much use of the operculum. The differences of this part appear in this group to be more constant and better defined than those of the shell. They are evidently of value in distinguishing species and even groups which are somewhat more comprehensive than species. We would, however, with M. Petit and Mr. Redfield, stop far short of assigning a generic value to the differences in the opercula of the groups of *Cyclostoma*.

No. 1. Shell reddish in the upper whorls ; in the lower whorls pale horn color or dingy white ; with a brown epidermis : with deep transverse somewhat wrinkled striae on all the whorls ; foveately wrinkled, with shallow depressions ; with a distinct umbilical keel, and large curved pits exterior to the keel : spire well elevated : whorls nearly five, flattened on the upper part, with a well impressed suture : aperture suborbicular, quite effuse and pointed above ; lip sinuate above, much advanced along the middle of the right side, moderately thickened : umbilicus a little more than half as wide as the aperture. Operculum with a much elevated spiral lamella in nine whorls, which are much inflected curvately, the outer surface being convex, like the sides of an inverted saucer.

Mean divergence  $120^{\circ}$  ; height .55 inch ; greatest breadth .88 inch ; least breadth .69 inch.

No. 2. Shell white, with a light brown epidermis : with rather deep transverse striae, which are very regular on the upper whorls, and very irregular on the last whorl ; with deep wrinkles commencing near the end of the penult whorl, where they are somewhat regular and oblique, as they are also on the lower side of the last whorl, on the upper side of which they are irregular and knotty ; the umbilical keel is obsolete : spire much depressed : whorls nearly five, well rounded, with a

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deeply impressed suture : aperture orbicular, slightly effuse and pointed above ; lip scarcely sinuate above, much advanced along the middle of the right side, moderately thickened : umbilicus four-fifths as wide as the aperture. Operculum with a much elevated spiral lamella, in seven or eight whorls, which are much inflected but not so curvately as No. 1.

Mean divergence about  $145^{\circ}$  ; height .6 inch ; greatest breadth 1.08 inch ; least breadth .85 inch.

No. 3. Shell with the spire brownish red, and the last whorl white ; with a brown epidermis : with the transverse striae fine and regular on the spire, and very irregular on the last whorl ; with fine wrinkles commencing above near the end of the penult whorl ; last whorl very coarsely and irregularly wrinkled above, nearly or quite smooth beneath ; the umbilical keel is obsolete : spire depressed : whorls nearly five ; last whorl flattened above ; with the suture moderately impressed : aperture orbicular, slightly effuse and pointed above ; lip scarcely sinuate above, moderately advanced on the right side : umbilicus about two-thirds as wide as the aperture. Operculum with a much elevated spiral lamella, the whorls of which, six or seven in number, are saucer-shaped ; that is, reflected, with the inner surface concave : the lamella is like that of No. 1 inverted.

Mean divergence about  $145^{\circ}$  ; height .67 inch ; greatest breadth 1.15 inch ; least breadth .91 inch. No. 3' differs in having the lower part of the last whorl finely wrinkled.

No. 4. This resembles No. 3., but the wrinkles on the last half of the last whorl are somewhat regular, oblique, and very large : the umbilical keel is well developed : the umbilicus is only half as wide as the aperture. The operculum is unknown.

No. 5. Upper whorls horn color or light red ; lower whorls white, with a brown epidermis : with the transverse striae rather fine and irregular ; wrinkles commencing on the antepenult whorl, regular, oblique and well defined on the penult whorl, sometimes regular on the lower part of the last whorl ; umbilical keel well developed : spire somewhat depressed : whorls about four and one-half, scarcely flattened above, with a well impressed suture : aperture orbicular, slightly effuse and pointed at the junction with the penult whorl ; lip rather thin, slightly advanced in the right side : umbilicus two-thirds as wide as the aperture. Operculum with a spiral lamella of about eight whorls, with the upper margins reflected and expanded so as to be nearly in contact.

Mean divergence about  $135^{\circ}$  ; height .55 inch ; greatest breadth .9 inch ; least breadth .72 inch.

No. 6. White, often reddish above ; with a brown epidermis : with the transverse striae extremely fine, somewhat regular on the upper whorls ; wrinkles commencing on the antepenult whorl, fine, regular and oblique on the penult whorl and at the beginning of the last whorl, on the rest of which they are fine and irregular : umbilical keel well developed : spire well elevated : whorls five ; last whorl slightly depressed above ; suture well impressed : aperture suborbicular, quite effuse and pointed above ; lip well thickened, moderately advanced on the right side ; umbilicus about three-fifths as wide as the aperture. Operculum slightly concave, with a thick spiral lamina of seven or eight whorls, the upper part of which is ex-

### *Analysis of a certain Group of Species of Cyclostoma. 61*

panded in both directions but mostly on the exterior, and is then curved downwards, presenting a broad rounded summit. A transverse section of the lamina somewhat resembles the italic letter *T*.

Mean divergence about  $120^{\circ}$ ; height .46 inch; greatest breadth .84 inch; least breadth .65 inch.

No. 7. This differs from No. 6: the depression of the last whorl above is rather deeper, and extends along the penult whorl where it is linear; the wrinkles are less regular, and are often wanting at the end and lower side of the penult whorl; the umbilical keel is very strongly developed; the epidermis is very dark brown; in the whorls of the opercular lamina, the lateral expansions come in contact, forming a covered way beneath. This type inhabits the parish of Portland. It attains a great size and solidity.

Mean divergence about  $120^{\circ}$ ; height .85 inch; greatest breadth 1.36 inch; least breadth 1.06 inch.

No. 8 differs from the preceding, in having the whole surface destitute of wrinkles.

No. 9 is also like No. 7; but its operculum is flatter, and has two more whorls, and all its whorls are therefore narrower; the epidermis is light brown; and the wrinkles are nearly obsolete, except a few which are small and well defined near the commencement of the penult whorl.

Mean divergence  $130^{\circ}$ ; height .6 inch; greatest breadth 1.03 inch; least breadth .81 inch.

No. 10. The wrinkles are well developed, rather sharp, oblique and regular on the penult and antepenult whorls, and are nearly obsolete on the last whorl, the lower side of which is quite smooth; the umbilical keel is very prominent; the operculum is like that of No. 9. Some have a few raised spiral lines on the last whorl.

Mean divergence  $125^{\circ}$ ; height .55 inch; greatest breadth .96 inch; least breadth .75 inch.

No. 11. White, often reddish; the epidermis is dark brown, with a white stripe next below the suture on the last whorl: with the transverse striae excessively minute: the wrinkles are very small on the antepenult and penult whorls, and nearly obsolete on the upper part of the last whorl, which is smooth below; there are a few indistinct spiral striae; the umbilical keel is well developed: spire well elevated: whorls nearly five, slightly depressed above; with a well impressed suture: aperture suborbicular, quite pointed and effuse above; lip well thickened, much advanced on the right side: umbilicus half as wide as the aperture. Operculum like that of No. 9.

Inhabits St. John's.

Mean divergence about  $130^{\circ}$ ; height .55 inch; greatest breadth .92 inch; least breadth .74 inch.

No. 12 differs from No. 11 in having the whorls more flattened above, and the aperture more dilated. Operculum as in No. 9.

Inhabits the north side, in St. Mary's.

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Mean divergence about  $135^{\circ}$ ; height .57 inch; greatest breadth .99 inch; least breadth .76 inch.

No. 13. Brownish red in the upper whorls, white in the last whorl; with a brown epidermis: with the transverse striae quite fine; foveate wrinkles commencing in the latter part of the penult whorl, and becoming obsolete in the latter part of the last whorl; with some lightly impressed spiral striae on the last whorl: umbilical keel moderately developed; spire moderately elevated: whorls nearly five; penult whorl flattened and last whorl much depressed above; with a well impressed suture: aperture orbicular, advanced above in an acute effuse point; lip sinuate above, moderately thickened: umbilicus about two-thirds as wide as the aperture. Operculum unknown.

Mean divergence about  $130^{\circ}$ ; height .7 inch; greatest breadth 1.15 inch; least breadth .93 inch.

No. 14. White, often more or less reddish; epidermis dark brown, sometimes paler and greenish; with a band on the periphery, and a very narrow one at the upper edge of the last whorl: with a few indistinct wrinkles on the last whorl near the suture; transverse striae very fine; umbilical keel well developed with age: spire well elevated: whorls nearly five, very convex; last whorl with a slight depression above; suture well impressed: aperture suborbicular, quite effuse and acute above; lip well thickened, a little sinuate above, moderately advanced on the right side: umbilicus about two-thirds as wide as the aperture. Operculum with a spiral lamella of about five whorls, of which the inner whorls are a little inclined inwards, and the outer ones shelf inwards and are much thickened.

It inhabits Accompong town, in the interior, in St. Elizabeth's parish.

Mean divergence about  $120^{\circ}$ ; height .5 inch; greatest breadth .73 inch; least breadth .58 inch.

No. 14' has a bright red spire, and on the last two whorls numerous minute wrinkles, which are indistinct about the periphery of the last whorl; without the white bands. Operculum unknown.

No. 14'' is intermediate between 14 and 14'.

No. 15. Shell brownish orange or brownish on the spire, reddish white on the last whorl; with a brown epidermis, which on the last whorl is mostly limited to two or three dark brown broad well defined spiral bands, which are often confluent in one: with the transverse striae very fine; wrinkles commencing about the middle of the penult whorl, mostly foveate; last whorl very irregularly wrinkled above, with minute pits exterior to the well developed umbilical keel, otherwise smooth: spire well elevated: whorls nearly five, with a slight depression at the top of the last whorl; with the suture well impressed: aperture suborbicular, quite effuse and pointed above; lip thick, a little sinuate above, and well advanced on the right side: umbilicus about three-fourths as wide as the aperture. Operculum quite concave, with the spiral lamella scarcely elevated, but much thickened and appressed on the exterior side.

Inhabits Manchester.

Mean divergence about  $120^{\circ}$ ; height .65 inch; greatest breadth 1 inch; least breadth .79 inch.

No. 15' is more wrinkled and much smaller, its greatest breadth being .65 inch.

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No. 16. More or less reddish, often with a white stripe at the upper edge of the last whorl; with a brown epidermis, which is more or less interrupted by naked spiral stripes, which are often numerous: wrinkles commencing in some before, in others after the end of the penult whorl, in some, narrow and well defined, often nearly obsolete, especially on the back of the last whorl; transverse striae fine but rather deep; rarely a little wrinkled near the umbilical keel, which is well developed: spire well elevated: whorls and aperture as in No. 15: umbilicus about half as wide as the aperture. Operculum with a spiral lamella of six or seven whorls, moderately sloping outwards, with the upper margin moderately reflected externally.

Mean divergence about  $120^{\circ}$ ; height .68 inch; greatest breadth 1.04 inch; least breadth .83 inch.

In No. 16' the wrinkles are obsolete.

No. 16" has the wrinkles mostly on the penult whorl.

No. 17. Shell white with more or less reddish, pure white on the last whorl next the suture; with a rich brown epidermis: transverse striae rather coarse; wrinkles minute but well defined, occupying more or less of the last whorl; umbilical keel well developed: spire much elevated: whorls five and one-third; last whorl moderately depressed above; suture well impressed: aperture large, suborbicular, somewhat acute above; lip rather thin, slightly sinuated below by the umbilical keel: umbilicus half as wide as the aperture. Operculum a little concave; spiral lamella with seven or eight whorls, rather wide, curvately reflected, but not concealing the intermediate space.

Mean divergence about  $110^{\circ}$ ; height .9 inch; greatest breadth 1.08 inch; least breadth .87 inch.

No. 18. Shell white with a greenish brown epidermis, or reddish with a dark brown epidermis: with the transverse striae extremely coarse; with irregular coarse but not deep wrinkles on the upper part of the last whorl; with some more or less distinct striae on the last whorl: spire well elevated: whorls about five and one-third, scarcely depressed above, with a well impressed suture: aperture large, suborbicular; effuse, pointed and advanced above; lip slightly sinuate above, moderately thickened; in the white variety thin and sharp on the right side: umbilicus a little more than half as wide as the aperture. Operculum flat; lamella with six or seven distinct whorls, rather narrow, moderately reflected.

Inhabits the middle parts of Manchester.

Mean divergence about  $120^{\circ}$ ; height .88 inch; greatest breadth 1.23 inch; least breadth 1 inch.

No. 18' is probably an accidental variety, with the last whorl deflected below the middle of the penult whorl; the aperture and the umbilicus are consequently contracted: in the other details it agrees with the type.

No. 19. Shell white with a brown epidermis: with deep transverse striae; with indistinct spiral striae; not wrinkled; umbilical keel obsolete: spire moderately elevated: whorls five; last whorl scarcely depressed above; suture well impressed: aperture suborbicular, effuse, pointed, and advanced above: lip well thickened: umbilicus nearly two-thirds as wide as the aperture. Operculum rather concave; lamella with about seven whorls, of medium width, nearly perpendicular except that the thickened upper margin is moderately reflected.

Inhabits the back parts of Manchester.

Mean divergence about  $130^{\circ}$  ; height .53 inch ; greatest breadth .77 inch ; least breadth .62 inch.

No. 20. Shell white, reddish on the upper whorls, with a pale greenish brown epidermis: transverse striae very fine, wrinkled; with minute wrinkles nearly covering the last whorl; umbilical keel wanting: spire moderately elevated: whorls five; last whorl flattened beneath, making the periphery subangular; with the suture well impressed: aperture suborbicular; effuse, pointed, and much advanced above; lip thick: umbilicus half as wide as the aperture. Operculum unknown.

Mean divergence about  $130^{\circ}$  ; height .45 inch ; greatest breadth .7 inch ; least breadth .58 inch.

*Note on the genus STOASTOMA.* Following the suggestion of Dr. Pfeiffer, (Zeitschr. Malak. 1849, p. 113,) I recognize the genus *Stoastoma* in the well-known *Cyclostoma succineum* Sowb. It appears to me, however, that Dr. P. has gone too far in saying that this species may be taken as the chief type ("Haupttypus") of the new genus. It differs from all the species of Jamaica, in having the labrum sharp and not produced beyond the labium, in the manner which suggested the name of the genus. *Stoastoma succineum* might therefore be considered as the type of a *Polynesian subgenus*, which has about the same degree of affinity to *Stoastoma* proper, that *Partula* has to *Bulimus*.

STOASTOMA VILKINSONIÆ. Shell subdiscoidal: pale horn color, subtransparent: with five spiral carinæ, of which one runs into the suture, and one appears on the middle of the whorls of the spire; some have, in place of the last one, two smaller carinæ; with very delicate spiral raised lines, usually four to six in each interspace: spire moderately and convexly elevated: whorls three and one-half, angulated, with a deep suture; last whorl rather large, detached from the penult whorl near the aperture: aperture campanulate; labrum produced very far, above abruptly produced and auriculate, with wide and deep scallops formed by the produced carinæ; labium much detached from the penult whorl and a little reflect-

ed : umbilicus rather wide, with the spiral lamella moderately developed. Operculum very deeply concave, auriculate at both extremities, very finely punctulate.

Mean divergence about  $140^{\circ}$  ; height .035 inch ; greatest breadth .07 inch ; least breadth .055 inch.

This species closely resembles *S. Gouldianum*, and is most readily distinguished by the difference in size. A closer inspection will detect the more essential differences.

**STOASTOMA TAPPANIANUM.** Shell subdiscoidal : pale horn color, subtransparent : with seven spiral carinæ, of which the upper one is small and the lower one very minute, and of which two are visible on the upper whorls ; with very delicate spiral raised lines, usually one between the first pair of carinæ and two or three in each following interspace : spire moderately and convexly elevated : whorls three and one-half, moderately convex, with a deep suture ; last whorl scarcely detached from the penult whorl near the aperture : aperture rather more than a semicircle, a little contracted behind the labrum, which is well produced, above rather abruptly produced, scarcely modified by the carinæ ; labium much detached from the penult whorl and a little reflected : umbilicus rather wide, with the spiral lamella moderately developed. Operculum very deeply concave externally, smooth, auriculate at both extremities.

Mean divergence about  $140^{\circ}$  ; height .045 inch ; greatest breadth .086 inch ; least breadth .07 inch.

This shell also resembles *S. Gouldianum*, and might be mistaken for the young of that species. But the labrum is thickened as in all mature shells of *Stoastoma* proper. It is most readily distinguished from that species by the peculiarities of the aperture.

**STOASTOMA HOLLANDIANUM.** Shell subdiscoidal : pale horn

color, subtransparent : with five spiral carinæ, one of which is visible on the spire ; with very delicate spiral raised lines, usually three to six in each interspace : spire moderately elevated convex : whorls three and one-half, moderately convex, subangular ; with a well impressed suture ; last whorl scarcely detached from the penult whorl at the aperture : aperture rather large, slightly constricted behind the lip, which is moderately produced, above not very abruptly produced, scarcely modified by the carinæ ; labium well detached from the penult whorl, scarcely reflected : umbilicus rather wide, with the spiral lamella moderately developed. Operculum deeply concave, subauriculate, smooth.

Mean divergence about  $145^{\circ}$  ; height .035 inch ; greatest breadth .065 inch ; least breadth .055 inch.

This species much resembles the preceding. It is most readily distinguished by its inferior size, and by the greater number of fine spiral striæ.

**STOASTOMA MORICANDIANUM.** Shell globose conic ; horn color, or very pale yellowish green : with numerous very fine somewhat tortuous raised spiral lines, of which three or four are visible on the spire ; and two or three still more minute lines in each interspace ; but in some, all the lines are nearly equal : spire well elevated, with the outlines nearly rectilinear : whorls four, quite convex, with a well impressed suture ; last whorl subglobose : aperture rather larger than a semicircle, a little campanulate : labrum moderately and above not abruptly produced, scarcely modified by the larger spiral lines : labium moderately detached from the penult whorl, slightly curved and reflected : umbilicus narrow, with the spiral lamella very small. Operculum rather deeply concave, subauriculate, very finely papillose.

Mean divergence about  $85^{\circ}$  ; height .075 inch ; greatest breadth .085 inch ; least breadth .075 inch.



This species resembles *S. Redfieldianum* ; but the shell is larger, the spiral lines are smaller, and the spire is larger in proportion at the last whorl.

**STOASTOMA PETITIANUM.** Shell between globose and discoidal : dingy white : with eight or ten raised slender spiral lines, of which three or four are visible on the spire, and as many others which are more minute : spire moderately elevated, convex : whorls three and one-half, moderately convex, with a lightly impressed suture ; last whorl well rounded : aperture much contracted behind the labrum, which is but moderately produced, and is double, with the outer margin scarcely modified by the larger spiral lines ; labium moderately detached from the penult whorl : umbilicus rather small, with the spiral lamella but moderately developed.

Mean divergence about  $125^{\circ}$  ; height .04 inch ; greatest breadth .06 inch ; least breadth .05 inch.

**STOASTOMA ANTHONIANUM.** This shell is like the preceding ; but the spire is much depressed ; the spiral lines are rather stronger ; and the aperture is very campanulate, the labrum being very much produced before the deep constriction.

Mean divergence about  $145^{\circ}$  ; height .035 inch ; greatest breadth .07 inch ; least breadth .055 inch.

Description of the *SELENE ARGENTEA* of *Lacépède*, a fish whose existence has been doubted. Read before the Lyceum of Natural History of New-York, November 26th, 1849. By J. CARSON BREVOORT. Pl. V.

Cuvier, in noticing the genus *Argyreiosus*, (group *Blepharidæ*, family *Scomberoidæ*,) in the ixth vol. of the *Histoire Naturelle des Poissons*, p. 181, says, "The *Sélène argentée* of *Lacépède*, tom. iv., p. 560, 562, pl. 9, fig. 2," (or vol. iv., p. 356, pl. 13, fig. 1, ed. 8vo, 1819,) "established on the authority of a figure copied by Aubriet, from a sketch by Plumier, is nothing but an *Abacatuia* (or *Argyreiosus Vomer*) which had worn away its first dorsal and ventrals, and as the *Sélène quadrangulaire* of the same author, or the *Zeus quadratus* of *Linnaeus*, borrowed from *Sloane* (*Jamaica*, tom. ii., p. 290, pl. 251, fig. 4), is identical with the *Chatodon Faber* (or *Ephippus Faber*), as already shown by *Broussonet*, the genus *Selene* must be entirely stricken out of Ichthyology."

In the above summary mode of disposing of a species, Cuvier has not noticed the size of the fish figured by Plumier, nor the long second dorsal fin. In the species as about to be re-established, it will be shown that it is larger than the largest specimens of *A. Vomer*; (of which Cuvier had seen over thirty;) that it has a longer second dorsal than *A. Vomer* is ever known to possess; and, finally, that it actually has the short first dorsal and ventrals of Plumier's fish, all which must necessarily prove it to be different from the well-known species above mentioned.

It must be this species which is said, in the *Hist. des Poissons*, ix., 186, to attain, near the island of St. Domingo, a length of two feet, and which is there preserved by smoking or salting it. The true *Argyreiosus Vomer* is too small and insignificant for such a purpose.

The true *Sélène argenteé*, as figured by Plumier, and described by Lacépède, differs in many essential points from the *A. Vomer*, and other species of that genus. The accompanying description was made from three fine specimens, one of which was procured perfectly fresh from the south shore of Long-Island, near the city. This last specimen drew attention from its large size and apparently new characters; and two others, in spirits and without labels, were found in the collections of the Society, which had been there for many years, but which had been left unnoticed, probably under the supposition that the specimens were from distant parts. Its large size alone would have enlisted Cuvier's attention, whence I conclude that no specimens of it exist in the cabinets of Paris.

The figure of it, as given by Lacépède, and his general description, were no doubt insufficient data for the establishment of a new species; but the remarkable prolongation of the second dorsal in his figure might have led to a doubt as to the propriety of classing it with *A. Vomer*. With specimens in hand, however, enough can be gathered from Lacépède's description to serve in identifying the "*lost species*." Plumier was a close observer of nature, and has not often led naturalists astray.

No doubt Cuvier is right in calling the figure of Prince Maurice (1st part, p. 399) and of Mentzel (p. 31) *defective*, either because the original *was* mutilated, or the draughtsman careless; but this is certainly not the case with Plumier's figure. That the fishermen confound it with the *A. Vomer* is very probable. Neither can I account for its omission by Dr. Dekay, in his Natural History of the Fish of New-York, unless on the ground that the specimens in the cabinet of the Lyceum, not being labeled as to locality, he had supposed the species to be extralimital.

The figure herewith given is of full size, in order to show

70     *Description of the Selene Argentea of Lacépède,*

how strongly the characters are marked which distinguish it from allied species. It would be impossible to imitate its coloring, which, with the Scomberoids generally, is gorgeous beyond description, owing to the variously iridescent hues of their silvery scales.

As for the second species of *Selene*, described by Lacépède, there can be no doubt, as shown by Broussonet, but that it is the *Chatodon Faber* of Bloch, or *Ephippus Faber* of Cuvier.

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Genus **SELENE** ; Lacépède (from Σελήνη, the moon).

*Body* ; much compressed and abbreviated.

*Facial outline* ; nearly vertical, with high occipital ridge.

*Ventrals* ; very short and delicate.

*First dorsal* ; low, with unequal spinous rays, the anterior ones longest.

*Second dorsal* ; with its second ray long and filamentous.

*Anal* ; resembling second dorsal, with shorter filament.

In the above characters, it will be seen that the low first dorsal and short ventrals of *Vomer* are combined with the long second dorsal and anal of *Argyreiosus*. If these characters are not sufficient to constitute a new genus, then this species becomes a *Vomer*. At any rate, it forms a link connecting the two genera.

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S. ARGENTEA ; Lacépède.

*Sélène argentée* ; Lacépède, tom. iv. p. 560, 562, pl. 9, fig. 2, ed. 4to, 1798 ; tom. iv., p. 356, pl. 13, fig. 1, ed. 8vo, 1819.

(*Argyreiosus Vomer* ; Cuv. and Val., Hist. des Poissons, vol. ix., p. 181, 186. *Vide supra*.)

In general appearance and color it resembles *Argyreiosus Vomer*, and in some respects, *Vomer Brownii*. The body is very high and compressed, and, in a vertical section, taken at the sixth spine of the first dorsal, thick above, wedge shaped below : the height being five times as great as the thickness.

At the small part of the tail, the section is a regular oval, whose height is one-thirteenth of that at the dorsal. General profile or outline of body forming an oblique pentagon. The sides of this pentagon are formed respectively by the facial, first dorsal, second dorsal, anal, and abdominal regions. The summits of the angular figure thus formed will be found near the tip of the lower jaw, occiput, base of second dorsal, centre of the narrow part of tail, and base of anal. The facial and anal regions coincide nearly with the sides of this figure, the others curve outwards. Four sides are very nearly equal, the first dorsal one being only from  $\frac{2}{3}$  to  $\frac{3}{4}$  of the others. The angles formed, supposing the sides straight lines, will be  $83^\circ$  at the snout and caudal;  $120^\circ$ ,  $124^\circ$ , and  $130^\circ$  at the occiput, base of second dorsal, and anal, respectively. The above proportions will serve to reconstruct the outline of the body, the three specimens varying very little from each other. To this must be added a low first dorsal, with its four anterior spines longest, the fin depressible into a furrow, a long filament to the second ray of the second dorsal reaching beyond the caudal, the next rays decreasing suddenly, and from the seventh to the last low and subequal. The anal similar to the second dorsal in extent and outline, with a filament only one half or one third as long. The caudal deeply forked, with long narrow lobes. Pectorals long and falciform. Ventrals exceedingly small, short, and delicate. Two low spines between the vent and anal. Eyes large, opercles long and narrow, mouth rather large, with minute uniform teeth. Scales microscopic, covering the body only, and part of the base of the first few rays of the second dorsal and anal. Color: uniform silvery ground, with beautifully varied iridescent reflections, and a few faint bands below the lateral line, only visible when fresh. Base of pectorals, tips of long dorsal, anal, and caudal rays dusky.

Size: of three specimens,  $6\frac{1}{2}$ ,  $6\frac{3}{4}$ , and  $7\frac{1}{2}$  inches, or 165, 171,

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and 190½ millimetres respectively, measuring from snout to centre of margin of caudal.

Locality: coast of United States from New-York southerly, West-Indies, and probably eastern coast of Brazil. One captured near New-York, October 6th, 1849. Flesh firm, oily, and mackerel-like.

Formula of fin rays: B: 7—P: 18—V: I. 5—D: VIII—I. 22—A: II—I. 19—C: 7-9 | 8- or 7 | 17 | s.

*Particular Description.*—Head recalls that of *Argyreosus* in height and outline. Facial outline very slightly incurved. Lower jaw even with the upper. Teeth very small, forming a narrow band along each jaw nearly to the commissure. Vomer and pharyngeals furnished with small teeth. Tongue pointed, and with a narrow band of small teeth along its middle line. A valvular membrane inside of the anterior portion of each jaw. Upper jaw protractile. A deep and narrow emargination between the first suborbitals above the tip of the upper jaw, into which the intermaxillary processes fit when in repose. Nostrils as usual, double, in front of the lower half of the eye, the upper and posterior one being half way between the eye and facial line. Eyes large, round, distant a little less than their diameter from the facial line, two and a half times the same from the tip of the opercle, and equidistant from the occiput and tip of lower jaw. First suborbitals very much developed, extending from the eye to the jaw, where, at the back part of the lower margin, they slightly cover the maxillaries, and show delicate radiated lines. The other suborbitals are narrow, and follow the outline of the eye.

Preopercles high and narrow, their posterior margin rounded, and forming an angle of about 140°. Margin above the angle slightly incurved, below it curving outwards. Opercles high, with a broadly rounded angle about equal to that of the preopercle, emarginated above so as to present a second rounded point, with finely radiated lines along the angle. Below, the margin is nearly straight. Its width nearly equal to diameter of eyes. Interopercle long and narrow, broadest below. Subopercle nearly parallel to preopercle. Besides several small raised lines about the eye, there is one, well marked and in strong relief, rising from the upper end of the preopercle; this extends upwards with a double curve, and, approaching the occiput, it becomes nearly parallel to the dorsal outline, giving out several branches on its way, and becoming finer until lost half way between the occiput and first dorsal.

The two first bones of the humeral arch, seen outside behind the opercle, form the *corsalet*, as in other scomberoids.

The lateral line starts from the junction of the posterior edges of these bones, and, giving out a few short branches on each side, curves boldly upwards, forming very nearly the segment of a circle, whose radius equals one fifth of the height of the body, extending thus about 150° around its centre, and in its course making several slight undulations, the surface of the body below each of them being slightly raised, giving it a peculiar corrugated appearance. Having formed the above arc,

it turns with a slightly rounded angle and extends backwards, making a few undulations, but in a straight course to the middle of the caudal fin. It is formed by a narrow series of small scales, visible to the naked eye, larger than those of the rest of the body, and standing in relief, becoming narrower and the scales smaller as it approaches the tail. (The straight part in old specimens appears continued forward as a light furrow, reaching to near the opercles.) The scales are exceedingly minute and delicate, hardly distinguishable by the naked eye; larger towards the tail. They have an irregular ovoid outline, with from five to twenty concentric striae, the inside striae being continuous around the centre, the others cut off before and behind. Some of them show a series of striae on the under side more nearly circular and less in number than the upper ones. The scales vary from 1-40th to 1-20th of an inch in length. They cover the whole body and tail. The membrane between the 2d and 5th rays of the second dorsal, and between the 2d and 3d rays of the anal, are well covered with scales for some distance from their base.

The *pectoral fin* is placed just behind and below the angle of the opercle. It has the elongated falciform outline peculiar to allied genera, and its length is equal to the short first dorsal region of the pentagonal outline. The upper margin forming a regular curve, while the under one expands from the base and contracts again, rather suddenly at first, and gradually tapers to a point. The articulation is very free, the upper part of it lying in a depression or axillary sinus. First and second rays single, the first subspinous, less than 1-7th the length of the fifth; second single, with about 10 articulations, strong, broad, and reaching half way to tip of fin, with a narrow membrane along its upper exposed margin; third bifid; fourth trifid; fifth longest; the next ones decreasing suddenly in length, but having more and more branches; the seventh and eighth having six, whence they decrease more gradually in length to the last, which is short, single, and delicate. The fin has eighteen rays.

The *ventrals* are very short and feeble, closely set together on the lower edge of the abdomen. The base of the first ray is exactly twice as far from the base of the second dorsal as it is from the tips of the jaws. Their length is equal to the distance of the eye from the facial outline. The spine is thin and sharp, not quite as long as the first soft ray; the second soft ray longest; the last connected by a membrane to the body. The fin has one spinous and five articulated rays.

The *vent* is placed just behind the base of the ventral fins.

The *first dorsal* is composed of eight spines: the first four are nearer together than the others, and longer. The whole fin lies in a deep furrow when depressed, and the four shorter spines hardly appear above it. They are all connected together by a membrane. The base of the first is nearer to the second dorsal than to the occiput; it is very short, while the second is longest, and equals the diameter of the eye. The third and fourth are shorter than the second; the fifth is the shortest in the fin; the next three are also very short and nearly recumbent, the tip of the last one being close to the base of the second dorsal.

The *second dorsal* has one spinous and twenty-two articulated rays, and extends nearly to the caudal fin. The base of the first ray is placed at the tip of the uppermost angle of the dorsal line, and the base of the fin is about  $\frac{2}{3}$  the height of the body. The spine is short, and closely joined to the base of the second ray or first articulated one, which last is a very long, articulated, and apparently single ray, stout at first, and gradually tapering to its end, which reaches a little beyond the

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lobes of the caudal. In the specimen before me, its length is a little more than the distance between its base and the chin. Closely observed it appears bifid, the upper branch longest. The next ray is less than half the length of the second, and with about four branches; the other rays decreasing suddenly to the seventh, whence they are subequal to the last, which is connected by a membrane to the back. The membrane between the second and fifth rays is covered by scales to a height exceeding the length of the last rays of the fin. The base of each ray is set in a depression at the dorsal ridge.

The *anal spines* are two low serratures, quite recumbent, placed between the vent and anal fin, rather nearer to the former, and close behind each other.

The *anal fin* resembles the second dorsal in size and outline. It is composed of one spinous and nineteen articulated rays, extending as far back as the second dorsal. The base of the first ray forms one angle of the pentagonal outline of the body, and is equidistant from the chin and base of last ray of the second dorsal. The base of the fin equals that of this last mentioned one. The spine resembles that of the second dorsal, and the second ray or first articulated one is long, stout at the base, and soon divides into two branches, the anterior longest, and the posterior one again divided; all three, however, closely joined and tapering to the end. In one specimen before me, its length is equal to half the distance from its base to the tip of the upper jaw, while in another it equals three fourths, and in a third, four fifths of that distance. The third ray is much shorter, much branched; while the sixth and succeeding ones are subequal. The base of the last is exactly under the last of the second dorsal, and has, like it, a small membrane connecting it to the body.

The first rays of both these fins are nearer together than the others. Scales are observable between the second and third rays for some distance along the membrane.

The *caudal fin* is strong and deeply forked, with two long and narrow lobes. It has seven small outside rays above, and six below, following which are two long, stout, broad, single, and articulated rays, tapering to a point at the end of the lobes, and fifteen branched rays, of which eight are above and seven below the end of the lateral line. The lower lobe is slightly longer than the upper one, and equals the length of the pectoral fin. The first branched rays are as long as the large single ones, the next diminishing rapidly in length, and all, except the four or five centre ones, closely applied together.

No examination of the internal anatomy was made, as it was not thought proper to mutilate the specimens.

*Colors.*—The iridescent play of colors in the fresh specimen can not be imitated, and with difficulty be described. The general ground of the whole fish is brilliant silvery white or pearly, with reflections of every hue, like that of the finest mother-of-pearl. The only distinctive marks deserving particular notice are three or four indistinct, broad, transverse, and vertical bars, of a very pale dusky color, visible while the specimen is fresh, and extending from the middle of the sides downwards: the first one directly under the pectoral fin and very faint, the others more apparent. The iris of the eye is pale golden above and pink below. The axillary sinus of the pectoral is dark dusky. A narrow dusky edging runs along the margin of the occipital ridge and of the groove of the first dorsal. The first dorsal rays are pale dusky; the membrane colorless. The forward edge of the second dorsal and the



filament itself are dusky, with a broad margin of the same along the edge of the fin as far as the seventh ray, the other rays being merely tipped with dusky, while the rest of the fin is of a pale flesh color. Pectorals and ventrals colorless. Anterior margin of anal greenish dusky, the long filament of the same color, and the rest of the fin of a paler hue than the dorsal. Upper part of the body or tail just behind the second dorsal darker than the rest of the body. Tips of caudal broadly edged with dusky, the rest of the fin of a pale amber. The occipital region and the jaws of a pale watery pearl color, the rest of the head strongly iridescent. Body above the lateral line more iridescent than below.

It is hardly necessary to show the difference between this fish and *Argyreusomus Vomer*. The size attained by the *Selene* is almost enough to draw attention to the minor specific distinctions. The first dorsal of the *Selene* is short, as well as the ventrals, while the second dorsal and anal have a long filamentous continuation. In *A. Vomer* the first dorsal has a very long filamentous ray, and the five soft rays of the ventrals are excessively long; the second dorsal and anal being long, but not filamentous, and not reaching to the caudal lobes. The caudal lobes of *Selene* are much longer than those of *A. Vomer*, the pectorals rather longer also. The profile of *Selene* is much more vertical than that of *A. Vomer*, and the angles of the outline more sharply defined. In color, the principal difference is in the ventrals, which are transparent and colorless in *Selene*, but nearly black in *A. Vomer*, and in the broad indistinct bands on *Selene*, which are not noticeable in *A. Vomer*. The numbers of the fin rays are almost identical in the two species.

The distance from the snout or tip of the upper jaw to the centre of the margin of the caudal opposite the termination of the lateral line, being measured and divided into one hundred parts, will give the following proportions, which have been verified and averaged on the three specimens. These were respectively 6½, 6¼, and 7¼ inches long, measured as above:

Snout to margin of caudal	- - - - -	100.
Height of body from base of first dorsal to ventrals	- - - - -	67.
Thickness of body at base of pectorals	- - - - -	13.
Snout to eye	- - - - -	21.5
Diameter of eye	- - - - -	7.5
Eye from profile	- - - - -	6.
Snout to tip of maxillaries	- - - - -	12.
Posterior tip of opercle to profile	- - - - -	22.5
Snout to base of pectorals	- - - - -	39.
Longest ray of pectorals along the curve	- - - - -	39.
Snout to base of ventrals	- - - - -	35.
Longest ray of ventrals	- - - - -	6.
Snout to base of first dorsal	- - - - -	63.5
Second spine of first dorsal, long	- - - - -	7.
Base of first to base of second dorsal	- - - - -	18.
Base of second dorsal, long	- - - - -	44.
Longest ray of second dorsal	- - - - -	67.-78.
Last ray of second dorsal, long	- - - - -	4.
Snout to base of anal	- - - - -	50.
Base of anal, long	- - - - -	44.5

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Upper lobe of caudal, measured outside, long - - - -	36.
Lower lobe of caudal, do. do. - - - -	39.
Middle rays of caudal, long - - - -	55

The *Abacatuia* of Marcgrave (*Piso, Brazil, 161*) is the *Argyreus Vomer*. A curious error is committed by the compilers who used Marcgrave's materials; for at p. 145 of the above work, the description of a so-called *Guspervus* (the *Che-todon arcuatus*) is accompanied by a figure of the *A. Vomer*, but different from that on p. 161. This description is repeated on p. 178, with the true figure of the *Che-todon arcuatus*. Cuvier indicates this error. The *A. Vomer* is first figured in *De Laet*, p. 574, without a description, under the name of *Awah-kattoe-jakwe*; and in *Piso, de India Utriusque*, p. 55, it is given again, with a full description. In this last work it is noticed in such general terms, that the description would apply to any one of the broad *Scomberoids* with filamentous rays,\* and is spoken of as excellent food. May it not be that here the *Selene* is intended, which is large enough, while the *A. Vomer* is too small almost to be applied to such a purpose. Again, the fish said by *Mons. Ricord* (Cuv. and Val., ix., 186) to be found two feet long at St. Domingo, must be the *Selene*, and not the *A. Vomer*. Plumier appears to have been the only person who ever drew the *Selene* from life. His figure was, no doubt, considered as that of an *A. Vomer* until distinguished by Lacépède, who, however, not having the specimen to describe from, could not give sufficient specific details to establish the species on a sure basis. Cuvier is, no doubt, right in supposing Mitchell's *Zeus capillaris* and *rostratus* (Lit. and Phil. Trans., i., 383, pl. 2, fig. 1., 2) to be identical with each other. I have specimens where the two long filamentous rays of the first dorsal are firmly glued together. He, however, only gives it one long ray; ours has certainly two, and on this account, as well as from other specific differences, ought to form a species by itself, which may be called *A. funiculatus*.

The high and compressed form of body peculiar to the *Blepharidæ*, enable them, no doubt, to circulate freely between the long fuci growing on rocky bottoms, where they find plenty of food, and security from their enemies.

I have been informed, since writing the above, that a fish called the *Cavalli*, and appearing to answer to the *Selene*, is caught in numbers in the West-Indies, and eaten with relish; and that the little *A. Vomer*, or, more probably, the fish of Mitchell, is considered a great delicacy.

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\* No name has yet been given to this group of genera composed of *Olistus*, *Scyris*, *Blepharis*, *Gallichthys*, *Argyreus*, *Selene*, *Vomer*, and *Hynnus*. Part of the genus *Carengus* ought, perhaps, to be added to this group. I would propose the name of *Blepharida* to distinguish it.

*Descriptions of New Species and Varieties of the LAND SHELLS  
of JAMAICA, with Notes on some previously described Species.  
By C. B. ADAMS, Professor of Zoology in Amherst College,  
Massachusetts. Read April 21, 1851.*

The writer has recently spent some time in Kingston, Jamaica, in arranging the land shells of that island, which are in the collections of the Honorable Edward Chitty, and in selecting from them materials for the proposed monograph of Jamaica shells. Among them are several new species and varieties, which have recently been obtained by Mr. Chitty, and which, with some previously known, are described in this article.\*

*Cyclostoma Hillianum*, var. *LEPORILABRE*. This variety is distinguished by having an abrupt reflection of a small part of the outer peritreme next above its contact with the penult whorl. The outer peritreme is also very much expanded, and is somewhat sinuate above.

*Cyclostoma spinulosum* (p. 1 of Contributions to Conch.) is perhaps identical with *C. lincinellum*, Lam., if we may judge from the figures of Lamarck's species in Kuster's "*Cyclostomacea*."

*CYCLOSTOMA MOUSSONIANUM*. Shell short, globose-conic: dingy white, with numerous more or less interrupted spiral reddish brown lines: with more or less crowded transverse subimbricate lamellæ, which are decussated by numerous small spiral ridges, with the intersections well developed into spines in the angle of the suture: spire with very convex outlines; apex usually truncate with the loss of two whorls; remaining whorls three and one-half, very convex; last whorl a little detached from the penult whorl near the aperture, but

\* This and the following articles were prepared by the writer while in Kingston.  
MAY, 1851

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soldered to it by the outer peritreme : aperture circular ; inner peritreme moderately produced ; outer peritreme much expanded, and reflected very convexly back of the plane of the aperture ; imbricate, slightly and finely scalloped : umbilicus not very wide, extending through the truncate apex.

Mean divergence about  $75^{\circ}$  ; length .54 inch ; greatest breadth .53 inch ; least breadth .38 inch.

Operculum very convex, very closely striated obliquely, with the spiral lamella moderately raised.

This shell closely resembles *C. spinulosum*, except in the outer peritreme and in the operculum, which widely distinguish it from the allied species. The operculum, however, somewhat resembles that of *C. anomalum*, and the lip is like that of *C. retrorsum*.

The species is named in honor of Professor A. H. Mousson of Zurich, Switzerland.

*Cyclostoma amandum* (p. 3 of C. C.) is probably identical with *C. scabriculum*, Sowb.

*Cyclostoma virgineum* (p. 90, C. C.) is identical with *C. pisum* (p. 9.)

*Cyclostoma concentricum* (p. 4, C. C.) is not sufficiently distinct from *C. variabile* (p. 3, C. C.) to take a higher rank than that of a variety.

CYCLOSTOMA MUTATUM. This name is here proposed for *C. articulatum* Sowb., inasmuch as Gray in Griffith's Cuvier (1836) had already applied the latter title to a species afterwards known as *C. filosum* Sowb. Sowerby's *C. articulatum* was not established until 1843, and must therefore be dropped.

CYCLOSTOMA CAMPBELLII. Shell elongate conic : color ? with numerous transverse moderately elevated lamellæ : apex acute : spire not truncated, with the outlines but little convex : whorls six and one-half, quite convex, with a rather deep suture ; last whorl at the end much detached from the penult whorl, and angular above : aperture nearly circular, with the

inner peritreme moderately produced, and the outer peritreme small and expanded into the plane of the aperture : umbilicus small.

Mean divergence about  $40^{\circ}$  ; length .36 inch ; greatest breadth .2 inch ; least breadth .16 inch.

For this and several other new and interesting species we are indebted to Archibald Campbell, Esq., of New Hope, Westmoreland.

*Cyclostoma xanthostoma* and *C. ignilabre* have white-lipped varieties, each of which may be designated by the name **ALBILABRE**.

*Cyclostoma proximum* (p. 8, C. C.) is perhaps only a variety of *C. fascia*, Gray.

*Cyclostoma nitens* (p. 8, C. C.) appears to be connected with *C. Augustæ* (p. 7, C. C.) by intermediate specimens, and is probably only a variety. Another variety of *C. Augustæ* may be designated by the name of **TESTUDINEUM**. Its sculpture is more prominent, and the color is more or less like burnt umber. It approximates towards *C. fascia*.

The rufous or red lipped varieties of *Cyclostoma Jayanum* and *C. Augustæ* may be designated by the name of **RUFILABRE**.

**CYCLOSTOMA CHEVALIERI**. Shell ovate conic : brown, darker at the summit, white along the suture, around the umbilicus, and with the peritreme white ; also with several spiral series of dark brown dots, of which series two on the upper whorls and three on the last are most conspicuous : smooth and shining : spire rather convex, truncated with the loss of more than two whorls ; about four whorls remaining, which are quite convex, with a moderately depressed suture : aperture nearly circular ; the inner peritreme slightly developed ; outer peritreme smooth and widely expanded, (especially above and on the left side,) well appressed to the penult whorl : umbilicus very small.

Mean divergence about  $45^{\circ}$  ; length .68 inch ; greatest breadth .48 inch ; least breadth .35 inch.

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The operculum is similar to that of *C. album*, being sub-spiral, with oblique striæ.

Variety *ALBUM* wants the dark brown color, and has the spiral dotted lines more or less indistinct.

Variety *VIRGATUM* is dingy or pearl white, with the spiral dotted lines conspicuous.

This species is named in honor of the botanist M. Chevalier.

*Cyclostoma album*, var. *FUSCUM*, is distinguished by its smaller size, brown color, and a less smooth surface.

*CYCLOSTOMA YALLAHENSE*. This species resembles *C. hyacinthinum* (p. 9), which is probably identical with *C. Banksianum* Sowb. But it is smaller and more slender; the color is bluish brown, and does not change by age or exposure into orange near the aperture; the striæ are coarser; the oblique indentations are often obsolete. The operculum is similar to that of *C. hyacinthinum*.

Mean divergence about  $46^{\circ}$ ; length .48 inch; greatest breadth .32 inch; least breadth .27 inch.

Although this shell so much resembles the species with which we have compared it, a peculiar type is easily recognized in it. The two types are geographically remote; this species inhabiting the east end of the island from Yallahs' Hill eastward, while the other occurs in the middle of the south side (Manchester) and westward. Neither species has been found in the intermediate regions.

*CYCLOSTOMA SERICINUM*. Shell much elongated, conic: silky white, with four spiral series of brown dots, of which three appear on the spire; around the umbilicus is a fifth series less distinct: with crowded regular transverse obtuse fine raised lines: spire with the outlines moderately convex, truncated with the loss of two whorls; whorls remaining four and one-half, quite convex, with a rather deep suture: aperture slightly detached from the penult whorl; inner peritreme in-

distinct; outer peritreme moderately expanded, except on the left side, which is not reflected: umbilicus small.

Mean divergence about  $38^{\circ}$ ; length .62 inch; greatest breadth .36 inch; least breadth .26 inch.

Inhabits New-Hope, Westmoreland.

CYCLOSTOMA TAPPANIANUM. Shell elongate conoid: brownish orange, with a paler band below the periphery of the last whorl, with the columella brown: with crowded strong transverse striæ, and less strongly impressed spiral striæ; spire with the outlines moderately convex, truncated with the loss of — whorls; remaining whorls four, slightly convex, with a moderately impressed suture: aperture ovate, acute above, with the margin not reflected but sharp: umbilicus indistinct.

Mean divergence about  $30^{\circ}$ ; length .41 inch; greatest breadth .2 inch; least breadth .18 inch.

Named in honor of the Hon. Benjamin Tappan, of Ohio. This species was found in a lot of Jamaica shells in the collection of R. G. Marshall, Esq., of Morant Bay.

A variety of *Cyclostoma papyraceum* has the whorls much abbreviated; the last whorl is more abruptly rounded, and the aperture is consequently shorter. It may be called ABBREVIATUM.

CYCLOSTOMA PERPALLIDUM. This name is given to "No. 20," described on page 148. Having seen a considerable number of specimens, all of which very exactly coincide in their characters, I can no longer hesitate to regard it as a good species, although the operculum is yet unknown.

CYCLOSTOMA DUBIOSUM. This species differs in one very striking character from *C. suturale* Sowb.: it wants the keel next below the suture, in the place of which there is a depression of the upper part of the whorls. We have seen several specimens of this species and many of *C. suturale*, and all of them conform exactly to their respective types. When the operculum of *C. dubiosum* shall have been found, additional peculiarities may be discovered.

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**STOASTOMA PHILIPPIANUM.** Shell subdiscoidal, convex above: pale horn color, subtransparent: surface smooth and shining: spire moderately and convexly elevated: whorls three and one-half, slightly convex, with a moderately impressed suture; last whorl regularly rounded over the periphery, very slightly detached from the penult whorl near the aperture: aperture slightly campanulate: labrum slightly produced beyond the labium, not scalloped: labium in its upper half a little detached from the penult whorl, with the lower half extending below the penult whorl: umbilicus of moderate size, with the spiral lamella excessively developed and usually soldered by its exterior edge to the last whorl, forming over the umbilicus a large arch, which has an opening rather larger than the aperture of the shell. Inhabits Ackendown in Westmoreland.

Mean divergence about  $130^{\circ}$ ; height .055 inch; least breadth .09 inch; greatest breadth .075 inch.

**STOASTOMA AGASSIZIANUM.** Shell subdiscoidal: horn color, subtransparent: with, on the last whorl, four very prominent sharp carinæ, viz., one along the periphery, and two below and one above, the latter appearing only for a short distance on the penult whorl; with a few fine raised spiral lines on the upper part of the whorls and between the carinæ: spire slightly elevated: whorls three and one-half, planulate, with a moderately impressed suture; last whorl planulate beneath, near the end rapidly descending and slightly detached from the penult whorl: aperture very slightly campanulate: labrum slightly reflected, rounded, not scalloped: labium —: umbilicus of moderate size, with the spiral lamella excessively developed and soldered by its exterior edge to the last whorl, forming over the umbilicus a large arch, which has an opening much larger than the aperture of the shell. In the only specimen now before me, there is, around the lip within, a deposit which contracts the aperture, and rising over the labi-



um in a rather thin curved lamella, extends over half the entrance to the umbilical arch.

Mean divergence  $165^{\circ}$ ; height .065 inch; least breadth .095 inch; greatest breadth .118 inch.

A small thick variety of *Trochatella pulchella* occurs in Portland, with the spiral ridges remarkably prominent. It may be designated by the name of *MULTICARINATA*. Another variety occurs at the opposite extremity of the island, at New Hope in Westmoreland, which is very large, and has the last whorl well rounded over the periphery, without any keel: it has no sculpture except the impressed spiral lines on the spire and on the upper part of the last whorl. The lip is less expanded than in the type of the species. It may be designated by the name of *NOBILIS*.

Of *Helicina neritella*, a variety, *ANGULATA*, is distinguished by an angular periphery, and by a double and much thickened lip.

*GEOMELANIA HILLIANA*. Shell conic-cylindric: white: with, on each whorl, about 33 to 35 small obtuse ribs, which are obsolete anteriorly and behind the labrum: spire with rectilinear outlines: apex truncate with the loss of — whorls: whorls remaining six, very convex, with a deep suture: aperture suborbicular, moderately effuse: labrum well expanded and reflected, thin; linguiform part moderately produced obliquely on the side, obtuse: labium well thickened and regularly reflected, slightly disjunct from the penult whorl.

Mean divergence about  $11^{\circ}$ ; length .25 inch; greatest breadth .085 inch; least breadth .07 inch.

*GEOMELANIA PYRAMIDATA*. Shell elongate conic: whitish: with, on each whorl, about 28 small obtuse ribs, which, on the last whorl, terminate a little below the periphery: spire with rectilinear outlines: apex usually truncate with the loss of two or three whorls: whorls remaining seven or eight, quite

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convex, with a deep suture : aperture widely ovate, moderately effuse : labrum rather thin, slightly reflected : linguiform part obtuse, moderately produced laterally at the lower part of the right side : labium a little thickened and reflected.

Mean divergence about  $15^{\circ}$  ; length .32 inch ; greatest breadth .11 inch ; least breadth .09 inch.

*Geomelania costulosa*, *G. exilis*, *G. Hilliana*, and *G. striosa* are as yet unique in the collection of the Hon. Edward Chitty. *G. conica* is unique in the Zoological Museum of Amherst College.

*Cylindrella Agnesiana*, var. DIMINUTA. We are indebted to Dr. A. Barrett for this remarkably small variety, with the following dimensions : length after truncation .67 inch ; breadth .22 inch. In the specimens before us the lip is but slightly expanded. It inhabits Flamstead, in the Port Royal Mountains.

CYLINDRELLA ROBERTSI. Shell elongate, fusiform, widest a little below the middle : pearl white : with, on each side of the suture, a series of very short transverse prominent ribs, which abruptly terminate so as to leave a large portion of the middle of the whorls smooth ; ribs about fifteen on each whorl ; the series below the suture being the larger ; both series are continued on the two angles of the produced part of the last whorl, over on the back part of which each rib is united to its opposite by a small lamella : spire with the outlines quite convex except in the upper third : apex truncate with the loss of — whorls : whorls remaining nine or ten, planulate or slightly concave, with a deep suture ; last whorl widely disjunct in its last third part from the penult whorl, with an angle on the right and another on the lower side : aperture subangular above and below, more angular on the right : lip rather thin, reflected into the plane of the aperture, moderately expanded.

Length .37 inch ; breadth .095 inch.

Named in honor of the Honorable Mr. Roberts of Jamaica, to whom we are indebted for this and other interesting species.

*Cylindrella rosea*, var. FORTIS. Shell as long as var. *major*, (p. 21,) but with less diameter and more cylindric.

CYLINDRELLA ZONATA. Shell cylindric in the lower two-thirds, very robust: pink with a tinge of brown or purple, with a pearl white zone along the suture; pale brown in the aperture: with an elegant silky lustre produced by crowded oblique very fine striæ: spire with the outlines convex in their upper half; apex truncate with the loss of — whorls: whorls remaining eight, moderately convex, slightly margined on the lower side, with a moderately impressed suture: aperture similar to that of *C. rosea*, but more dilated in the lower part of the left side, and with the lip less expanded. It resembles *C. cylindrus*, but differs in always having a white zone, and in being often tinged with brown; it is much more robust: the aperture of *C. cylindrus* is more like that of *C. rosea* than of this shell.

Length 1.18 inch; breadth .41 inch.

*Cylindrella lata* often occurs with a much elongate sub-conic form. This variety may be designated by the name PRODUCTA. A specimen is 1.23 inch long and .34 inch broad.

Under *Cylindrella Maugeri* may be comprehended many types, which differ in color, form, and sculpture. These varieties are very local, being strictly limited to their several districts. But many of these districts have two varieties. They all conform with great exactness to a common type, which is of much less than generic value. The very considerable numbers of each variety, their strict conformity to their respective subtypes, and their geographical distribution, seem to indicate a specific value in the differences between them. Yet the number of types is so great and the differences between many of them are so slight, that we may well hesitate to pronounce

them species. It is difficult to avoid the conclusion that the whole group is more comprehensive than a species, while the several local types are of less than specific value, and that it is impracticable to recognise in these shells types of the average value of species.

In attempting to classify such of the varieties as are now before us, we have been surprised at the great constancy of coloring in respect of the kinds and distribution of color. The differences of color in a given variety are almost wholly in their greater or less depth.

The following varieties are in the collection of Mr. Chitty, to whom I am greatly indebted for information respecting them. There are a few more in the collection at Amherst College.

*a. Dark colored varieties.* In this group, the dark colors fade to a pale brown or cinnamon color.

**Var. NIGRESCENS.** Shell robust in the lower part, conic above: black on the last whorl and on several of the upper whorls, fading into brown in the middle, with a dingy white stripe anteriorly and a red lip: with a few striæ behind the lip. In some localities the shell is of medium size and form, rather more coarsely striate on the last half of the last whorl, and faintly striated on the first half. Inhabits Portland, and Manchioneal in St. Thomas-in-the-East.

**Var. SOLIDA.** Shell very thick and robust: very dark or blackish brown at both extremities, pale brown along the middle, with a pure white widening stripe next below the suture of the last whorl; pink in the lip and behind it: very coarsely striated on the last whorl, otherwise feebly striated. In paler specimens a faint tinge of red is seen on both extremities, and the lip is white. Inhabits the vicinity of Peace R. in the east part of Manchester.

**Var. LEVIS.** Shell robust but rather thin: livid black in the upper whorls, pale livid brown along the middle, anteriorly

with a rapidly widening pure white stripe, which unites behind the lip with a broad transverse white stripe that runs through a large triangular black spot; lip white: without striæ. Some pale specimens have a tinge of red along the middle. Inhabits Kilmarnock, in the east part of Westmoreland. In another part of Westmoreland is a subvariety, in which the form is less robust, the anterior white stripe is larger and tinged with yellow, and the transverse white stripe, being interrupted by the black spot, appears more like a short spiral stripe: the lip is rather less reflected, and the aperture smaller and more oblique.

Var. TRICOLOR. Shell rather robust: very dark brown at both extremities, with a narrow slowly widening snow white line next below the suture; lip rose red, a little whitish where it joins the penult whorl: with excessively minute striae behind the lip. This appears to be Dr. Pfeiffer's var.  $\alpha$ . A subvariety is more slender, paler at the end, and darker in the middle, with the aperture less wide. Inhabits Manchester. Paler specimens occur near Peace R., with the middle whorls of a dingy pearl color.

*b. Light colored fasciate varieties, not distinctly striated* above the middle whorls. In this group pale yellow fades into a dingy or pearl white, or is replaced by pearl white in fresh shells.

Var. CRASSA. Shell rather small, but robust and thick: dark livid brown at both extremities or bluish grey anteriorly; with a thick white lip; with a narrow white stripe next below the suture of the last whorl, and a slender white line on the anterior keel; otherwise pearl white: with very strong striæ on the back of the last whorl, which diminish in ascending the spire, becoming microscopic on the middle whorls. Inhabits Portland.

Var. UNICINCTA. Shell of medium size and form: dingy pale yellow, whiter and sometimes reddish on the last whorl,

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with a broad dark brown stripe anteriorly; white on the lip, with a tinge of rose red behind: finely striate near the end of the last whorl. Inhabits Manchester.

Var. *BICINCTA*. Shell either short and robust, or of medium size and form: pale yellow in the upper whorls and in the lip and behind it; on the back of the last whorl pure white with two brownish black stripes; otherwise pearl white: with fine striæ on the last half of the last whorl. This shell appears to be similar to Dr. Pfeiffer's var. *γ*. Inhabits Westmoreland.

Var. *CONCINNA*. Shell small but robust: on the back of the last whorl pure white, with a short black brown stripe; lip white; otherwise pearl white, more or less tinged with pale yellow, especially on the middle whorls: slightly striated on the back of the last whorl. Inhabits Whitney River estate in the east part of Manchester.

Var. *SINUATA*. Shell not robust and rather thin, with the lip remarkably sinuate: of a dingy pearl white, with, on the last whorl, a fine white line below the suture, and another on the anterior keel; lip pale red, with a tinge of brown behind: with excessively fine striæ on the back of the last whorl. Inhabits the east part of Portland.

*c. Light colored varieties, not fasciate, and not distinctly striated above the middle whorls.* Changes of color the same as in the preceding group.

Var. *RUFILABRIS*. Shell more or less robust, but rather thin: pearl white, with a tinge of yellow; lip vermilion, sometimes whitish on the inner side: finely striated on the back of the last whorl. Inhabits Portland.

Var. *CITRINA*. Shell more or less robust: sulphur yellow; sometimes pearl white when the lip is pure white; with a pure white, well defined, narrow stripe next below the suture; tinged with red at the end of the last whorl: with excessively fine striæ behind the lip only. Inhabits Manchester.

Var. *fusiformis*, Ad. vide Proc. Bost. Soc. Nat. Hist., Jan.

1, 1845, p. 14. It is of a pearl or ashy white color. It is Dr. Pfeiffer's variety  $\beta$ .

Var. ALBIDA. Shell like var. *citrina*, but with the white stripe reduced to an ill-defined line, slightly tinged with yellow on the penult whorl, with the red tinge very faint.

Var. VALIDA. Shell robust and very thick: pearl white, with a tinge of yellow on the middle or on all the whorls of the spire; last whorl whiter, with a pure white stripe on it next below the suture; lip pure white and very thick: strongly striated on the back of the last whorl, finely striated up to the middle of the shell. Inhabits near Peace R., Manchester.

Var. UNICOLOR. Shell of medium size and form: pale yellow or pearl white, with a white lip: strongly striated on the back of the last whorl, finely striated on the middle whorls. Inhabits Porus in the east part of Manchester.

*d. Strongly striated varieties, light colored, not fasciate.*

Var. STRIATULA. Shell thick, short, robust: pale greenish yellow, sometimes with a tinge of pale brown or horn color; lip white, thick, and well expanded: with fine regular approximate striæ, which are obsolete only at the summit.

Var. STRIATA. Shell short, robust: pearl white or pale horn color; with a white, much expanded, but rather thin lip: aperture not oblique: with fine regular, rather distinct striæ, which are obsolete only at the summit. Inhabits Waterloo in the back part of Manchester.

Var. CORPULENTA. Shell large and robust, but moderately thickened: pearl white, sometimes with a tinge of red on the upper whorls and anteriorly; lip white; with a large irregular black spot behind the lip: coarsely striated near the end of the last whorl; otherwise with the striæ of the lower half of the shell most lightly impressed. Inhabits St. Elizabeth.

Var. FUSCA. Shell short, robust, but moderately thickened: pale umber color, darker near the end of the last whorl; lip white: lightly striated on the upper whorls; in the rest

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regularly and rather coarsely striated. Inhabits Maroon Town in Hanover.

Var. CONICA. Shell widest in the penult whorl : white, with a tinge of red at both ends.

*e. Tesselated varieties.*

Var. TESSELATA. Shell rather robust : covered with alternate rectangular spots of cream color and amber, which terminate anteriorly at the cream colored keel ; black behind the lip, which is white : smooth above, lightly striated on the lower whorls, and coarsely striated on the black part of the last whorl. Inhabits St. Elizabeth.

Var. CINEREA. Shell of medium size and form : pale ash color ; black at the summit : with transverse broad umber stripes, which are numerous and deeply colored on the upper whorls, distant and pale on the middle whorls, and obsolete on the last whorl ; with a dark brown line along the suture and another on the anterior keel ; lip white, with a black stripe behind on the right, and a black spot behind on the left : back of the last whorl distinctly striated, otherwise very lightly striated. Inhabits near Accompong town, in the borders of St. Elizabeth, St. James, and Trelawney.

*f. Aberrant slender forms.*

Var. GRACILIS. Shell quite slender : pearl white, with a pure white keel and lip : at the end of the last whorl coarsely striated ; otherwise with excessively minute striæ.

Var. INTEGRÆ. Shell quite slender : dull white, with a clear white lip : striæ very oblique, quite distinct on the last whorl, very minute on the spire. The only specimen before me is not truncated. Inhabits Maroon Town in Hanover.

We have been assured by Robert Swift, Esq., and by Rev. E. Hartvig, of St. Thomas, (W. Ind.,) that *Cylindrella Maugeri* does *not* occur in that island.

The following forms of *Cylindrella* belong to the group, of



which *C. Dunkeri* is the type. The differences, although very constant, are small, except in size. In this respect the differences are both greater and less constant. Since however the peculiarities extend to many characters, as size, general form, form of the whorls and of the aperture, the sculpture, and color, we regard them provisionally as species, although it must be acknowledged that the varieties of *C. Maugeri* have nearly as good a claim to this rank. The same general remarks on their distribution might be made, as in the case of *C. Maugeri*.

**CYLINDRELLA PRINCEPS.** Shell like *C. Dunkeri*, but differing in the following characters: it is much larger; is of a reddish brown or horn color; the striæ are much finer, being nearly microscopic; the whorls are flat: aperture elliptical and angulated at the lower extremity; lip quite thick: it loses about eight whorls by truncation and has twelve remaining. Inhabits Swift R. head, St. George. Length .98 inch; breadth .15 inch.

**CYLINDRELLA ELATOR.** This is also a larger shell than *C. Dunkeri*, thicker, and strongly striated, with the whorls more planulate: it is much longer and more slender than *C. rubra*. Inhabits Westmoreland. Length .93 inch; breadth .13 inch.

*Achatina striosa* is possibly only a variety of *Bulimus octonoides* with the columella truncated.

**ACHATINA PROXIMA.** Shell conic but slender: very pale brown or horn color; with dark brown transverse stripes, about three on each whorl, less distinct on the upper whorls: with fine regular transverse small elevated lamellæ: apex moderately obtuse, smooth on the nuclear whorls: spire long, with the outlines nearly rectilinear: whorls eight, planulate, abruptly shouldered above, with a rather deep suture: aperture small, ovate: labrum thin and sharp: columella nearly straight. This shell resembles *A. Blandiana*. Its divergence

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in the upper whorls is less than in that shell, but its mean divergence is greater.

Mean divergence about  $18^{\circ}$ ; length .385 inch; breadth .095 inch; length of aperture .11 inch. Inhabits near Swift River head, Portland.

*ACHATINA SOLITARIA.* Shell elongate, ovate conic: pale brown; with dark brown transverse lines, about three on each whorl, wanting on the first two or three whorls: with excessively minute crowded transverse striæ: spire with the outlines a little convex: apex rather small: whorls eight, moderately convex, slightly shouldered, with a rather deep suture; last whorl subplanulate, long: labrum thin, sharp, a little produced in the middle: columella well produced and turning a little to the left.

Mean divergence about  $20^{\circ}$ ; length .52 inch; breadth .15 inch; length of aperture .185 inch. Inhabits New Hope, Westmoreland.

*SPIRAXIS BREVIS.* Shell long-ovate: pale horn color, translucent: shining, smooth anteriorly, otherwise with rather numerous microscopic striæ: spire with the outlines moderately curvilinear: apex rather small: whorls six, moderately convex, with a well impressed suture: aperture ovate: labrum thin and sharp: columella with the edge moderately projected into the aperture.

Mean divergence about  $20^{\circ}$ ; length .19 inch; breadth .07 inch; length of aperture .08 inch.

The variety of *Spiraxis aberrans*, which was described on page 88 as destitute of the transverse brown stripes, may be designated by the name *UNICOLOR*.

*Bulimus mirabilis* and *B. anomalus* may be referred to the genus *Spiraxis*.

*BULIMUS HORTENSIS.* Shell much elongate, conic: horn

color, (or black in the upper whorls, and lemon yellow in the lower whorls, when containing the animal alive) : with numerous microscopic striæ : spire with the outlines nearly rectilinear : apex small : whorls eight or nine, moderately convex, with a well impressed suture : aperture very thin and sharp : columella straight. The whorls are proportionally shorter, and the aperture is wider than in *B. subula*, Pfr., the revolution of the whorls being much less oblique. It nearly resembles *B. octonoides*.

Mean divergence about  $18^{\circ}$  ; length .42 inch ; breadth .12 inch ; length of aperture .12 inch. Inhabits gardens in Kingston.

*BULIMUS MACROSPIRA*. Shell much elongated, conic : pale horn color, or brownish, with a few scattering stripes of dark brown : shining, with excessively minute distant striæ : spire with the outlines a little concave above, otherwise slightly curvilinear : apex obtuse, rather small : whorls twelve, a little convex, with a well impressed suture ; last whorl short : aperture ovate, rather wide : labrum thin and sharp : columella nearly straight.

Mean divergence about  $18^{\circ}$  ; length .8 inch ; breadth .22 inch ; length of aperture .2 inch. Inhabits Maroon Town, in St. James.

*Helix Chittyana*, var. *BICOLOR*, is distinguished by a white lip, and by having the whole lower surface, except the whitish zone at the periphery, of a blackish brown.

A series of specimens connects *H. cara* with *H. amabilis* so closely, that the latter cannot be entitled to rank as more than a variety. Some which have the color of *H. cara*, and a well elevated spire, but otherwise resemble *H. amabilis*, may be called var. *MEDIA*.

*HELIX SWAINSONIANA*. Shell depressed, conic, subplanulate beneath ; with a moderately sharpened periphery, on both

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sides of which the outline is convex : dingy or brownish white ; with an ill defined infrasutural line of dark brown, commencing a little below the apex, and a spiral stripe of the same color below the middle of the whorls, commencing at the middle of the spire, and another stripe on the last whorl below the periphery ; with the lip white : indistinctly granulated ; with fine irregular striæ of growth : spire convex, moderately elevated : whorls nearly five, concave in the lower part, in the rest convex, with the suture lightly impressed : aperture transversely ovate or elliptical, with the lip well reflected backwards, and much thickened, with three teeth on the lower side, of which the outer pair are joined together at base, and all of which have corresponding external furrows : umbilicus deep, partly covered by the expanded and thickened columella. Inhabits Westmoreland.

Greatest breadth 1.13 inch ; least breadth .98 inch ; height .6 inch ; diameter of umbilicus .2 inch.

*Helix ingens*, var. IMPERFORATA, without an apparent umbilicus, is more common than the umbilicated type. Another variety, INDIGNA, is of much less size, and is much less acute at the periphery. It is also imperforate.

6. HELIX CONSANGUINEA. Shell depressed, rather more convex above than below : very dark reddish brown, with a pale brown or dingy white lip ; often with a pale stripe on the periphery : finely but strongly granulated on both sides : spire regularly convex : whorls rather more than four and one-half, moderately convex, a little depressed at the lower side next the suture ; last whorl with a narrow not very prominent keel on the periphery : aperture transversely ovate, much dilated, and produced laterally ; labrum well reflected backwards, and thickened, with four teeth below, of which three have corresponding deep external furrows, labium closely appressed but thick : umbilicus rather narrow, deep, partly covered with the dilated columella. Inhabits Portland.

Greatest breadth 1.08 inch ; least breadth .94 inch.

A variety, *IMPERFORATA*, is larger, rather less depressed, and without an open umbilicus. It inhabits Swift River head, in St. George. Another variety, *CARINATA*, is more sharply and prominently carinated at the periphery. It inhabits the other end of the island, at Belle Isle, in Westmoreland.

*Helix anomala*, var. *PALLESCENS*, is horn colored, sometimes with a reddish brown tinge, without a white line on the periphery. The umbilicus is somewhat narrower, and the shell is higher in the last whorl. It inhabits Accompong Town, in the back part of St. Elizabeth. Another variety, *CONVEXA*, is remarkably convex on both sides, especially beneath, and has a very narrow umbilicus. It inhabits the borders of Manchester and St. Elizabeth.

*Helix Bainbridgei*, var. *PRETIOSA*, differs from the ordinary type of the species in being white, with an exceedingly thin greenish epidermis on the last whorl; the lip is of a very pure snow white color; and the last whorl is larger and higher.

*HELIX BUDDIANA*. Shell subglobose, obliquely ellipsoidal: white, with a very thin yellowish brown epidermis: with very fine striæ of growth; some specimens have, on the last whorl, lightly impressed microscopic spiral lines, and rarely its surface is microscopically punctulated: spire convex: apex very obtuse: whorls nearly four and one-half, convex, with a rather deep suture: last whorl very large and globose: aperture rather large, with a semicircular outline on the right, and a sinuate outline on the left: labrum thin and sharp: labium with a dilated closely appressed deposit: umbilicus wanting. Allied to *H. tunicata* and *H. munda*. Inhabits Westmoreland.

Greatest breadth .65 inch ; least breadth .55 inch ; height .53 inch.

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Named in honor of my Conchological friend, Dr. B. W. Budd, of New-York City.

Fresh specimens of *Helix Blandiana* have reddish brown transverse ill defined stripes alternating with pale brown spaces.

**HELIX PULCHRIOR.** Shell subconic, rather thin : of a very light burnt-sienna color, sometimes with a tinge of cream color, on which are more or less numerous ill defined unequal transverse lines of a rich dark burnt-sienna ; often with a tinge of ash color on the upper whorls ; with a spiral rather dark line of the burnt-sienna a little below the suture, above which the transverse dark lines rarely extend ; with another very dark spiral stripe of the same color along the suture and on the periphery of the last whorl ; with a well defined large very dark circular spot of the same color on the umbilical region, which is sometimes margined by a pale circle, exterior to which is a line of rather dark burnt-sienna ; sometimes with a fine spiral line of the same color on each side of the periphery : surface moderately shining, with fine close striæ of growth : spire with the outlines moderately curvilinear : whorls five, a little convex ; last whorl subangular on the periphery : aperture wider than long : lip thin and rather sharp, slightly reflected : umbilicus wanting. This most richly colored of the Jamaica Helices is allied to *H. subconica*. Inhabits Portland.

Greatest breadth .65 inch ; least breadth .57 inch ; height .5 inch.

A variety has the dark umbilical spot margined with a circle of bright cream color, with another stripe of the same next below the dark periphery. It inhabits St. Thomas-in-the-East.

**HELIX JACOBENSIS.** Shell depressed conic, transversely ovate : yellowish horn color : with very fine well impressed crowded striæ of growth : spire with the outlines but little

convex : whorls four and one-half to five, a little convex, with a moderately impressed suture ; last whorl subangular : aperture transversely ovate, laterally dilated : lip but little reflected and thickened except in the columellar part, which is well thickened, reflected, and appressed : umbilicus wanting. In form this shell most resembles a very depressed *H. fusco-cincta*, but is much more dilated laterally near the aperture.

Greatest breadth .94 inch ; least breadth .75 inch ; height .6 inch.

This species is named for its habitat, the parish of St. James.

**HELIX SPRETA.** Shell orbicular, moderately depressed : very pale horn color, translucent : smooth : spire with the outlines a little curvilinear : whorls five, quite convex, shouldered, with a rather deep suture ; last whorl well rounded : aperture sublunate : labrum thin and sharp : umbilicus rather narrow and deep. This species is best described by comparison with *H. peraffinis* and *H. Boothiana*. Above, the spire is nearly as much depressed as in the former species : beneath, the last whorl is nearly as convex as in the latter, while the umbilicus is as wide as in the former ; the aperture is not so wide as in *H. peraffinis* nor so high as in *H. Boothiana*.

Greatest breadth .25 inch ; least breadth .22 inch ; height .17 inch.

Variety **ERRANS** differs from the above, in having the whorls less shouldered and consequently the suture less deep, and in having the region around the umbilicus somewhat thickened internally so as to be opaque.

*Helix epistylum* var. **MINOR** differs from the common type of the species in being much smaller, with a more rounded outline ; beneath it is considerably more convex ; the surface is less shining. Greatest breadth .52 inch ; least breadth .49 inch ; height .45 inch. It inhabits Westmoreland. At the opposite extremity of the island, in Portland, *H. epistylum* is

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represented by a variety which is more variable in size, and the small mature specimens are nearly intermediate between var. minor and the common large type, which inhabits Manchester and other middle parts of the island. At Easington in St. David's, is another variety, distinguishable from the small specimens, which occur in the neighboring district of Portland, by the entire absence of any internal lamina or teeth. It may be called DELAMINATA.

The same name, DELAMINATA, may be given to a variety of *H. osculans* which wants the internal lamina.

*Proserpina nitida* var. PLANULATA is distinguished by being much flattened above.

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*Descriptions of New fresh-water SHELLS which inhabit JAMAICA. By C. B. ADAMS. April, 1851.*

PHYSA JAMAICENSIS. Shell long ovate, acuminate: brownish horn color: with microscopic striæ of growth, and some lightly impressed microscopic spiral striæ: apex acute: spire well lengthened, with the outlines slightly curvilinear, with a well impressed suture: aperture long ovate: lip thin.

Length of aperture .32 inch; total length .48 inch; breadth .25 inch.

This species was found plentifully in a tank at Malvern, more than 1000 feet high, in the isolated group of the St. Cruz Mountains in St. Elizabeth. The structure of the country for many miles in every direction is such that no water is ever seen standing on the surface. Through innumerable subterranean fissures rain immediately percolates to unseen depths. Artificial tanks are therefore the only places where fresh water



shells can exist in this region. We are quite ignorant of the manner in which this species was introduced to its habitat.

**NERITINA JAMAICENSIS.** Shell obliquely ellipsoidal, rather thin: white near the apex: otherwise covered with violet, which is sometimes tinged with dark gray, with lighter and darker shades in spiral bands, and is more or less interrupted by lines of growth and irregular white spots: surface smooth and shining: apex rather prominent: spire convex: whorls nearly three, with a fine but well impressed sutural line: labium smooth, moderately thickened.

Length of spire .07 inch; height .3 inch; breadth .32 inch.

**NERITINA TENEBRICOSA.** Shell obliquely ellipsoidal, rather thin: black, with numerous angular translucent spots of horn color: white on the labium, blue within the aperture: with numerous excessively fine spiral and incremental striæ: apex quite prominent: spire convex: whorls two and one-half, with a very fine but well impressed sutural line: labium smooth, moderately thickened. Inhabits Black River.

Length of spire .06 inch; height .36 inch; breadth .41.

It affords us much pleasure to find two new fluviatile species of this genus in the Jamaica Fauna. With the exception of *N. punctulata*, all the other species are strictly marine, living upon the open sea-shore. If authors are correct in stating that St. Domingo is the habitat of *N. punctulata*, that species is the only fluviatile shell in Jamaica, belonging to a genus of well characterized species, which is not peculiar to the island. Possibly Lamarck's statement of habitat is erroneous, arising from the shells having gone to France by way of St. Domingo.

*Remarks on the Habitats of certain species of LAND SHELLS.*

By C. B. ADAMS, Professor of Zoology in Amherst College, Massachusetts, and EDWARD CHITTY, Chairman of Quarter Sessions, JAMAICA. April, 1851.

In the following catalogue of the shells of Jamaica, some species are enumerated which we have not yet been able to find in the island. Some described species are doubtfully identified with our specimens. Others, which are clearly identical with Jamaica shells, have been referred by authors to other habitats. In the hope of eliciting information from any, who may be more particularly acquainted with the facts, we invite the attention of our readers to such species.

The following species, said to inhabit Jamaica, we have not found. *Cyclostoma labeo* has been described by many authors as a Jamaica species. It is very unlike any shell that we have seen or heard of in Jamaica. *Cyclostoma asperulum*, Sowb., may perhaps be identical with some of our shells. Its affinities confirm the statement of its habitat. As to *Cyclostoma corrugatum*, see C. C., page 141.

*Trochatella Greyana* Pfr. and *Helicina Gossei* Pfr. we have not identified. *Helicina picta* Fer., said to occur both in Martinique and in Jamaica, we have excluded from the catalogue. *Cylindrella alabastrina* Pfr., a sinistrorsal variety of *C. Humboldtiana* Pfr., and a uniformly white variety of *C. variegata* Pfr., Cuban species, are also said to occur in Jamaica, but we have not yet identified them.

*Bulimus rufescens* Gray and *Helix Martiniana* Pfr. are also unknown to us. The latter is referred to Jamaica on the authority of Attanasio, a dealer who collected some of the shells of Jamaica during a visit to the island. On the same authority *H. Okeniana* Pfr. is said to occur at Savanna-la-mar. Having seen a specimen kindly loaned to us by Mr. Cuming, we think it distinct from any of our shells. It ap-

pears to be a Jamaica type. *Helix angustata* Fer. is said to occur both in Hayti and in Jamaica. (Mke. in Zeitschr. f. Malak. 1845, p. 61.) We have never seen it in this island.

We are also somewhat doubtful of the identity of *Cyclostoma lincinellum* Lam. with *C. spinulosum* Ad., and of *C. Banksianum* Sowb. with *C. hyacinthinum* Ad.

Several species of Jamaica shells, described by Mr. Sowerby, are said by him, on the authority of Mr. G. C. Bainbridge, of Liverpool, to inhabit Demerara. To the species mentioned by us on pp. 47-9, and p. 108, (Cont. Conch.) may be added *Cyclostoma mirabile* Wood, if, as we now suppose, that species is identical with *C. decussatulum* Ad. In the absence of direct information concerning the shells of Mr. Bainbridge, we must be allowed to doubt whether species, which inhabit the rocky mountains of Jamaica, do also inhabit Demerara.

The following species also are known to us to inhabit Jamaica, but are said to occur in other islands: *Cylindrella brevis* Pfr. in Martinique and Cuba; *Achatina leucozonias* in Martinique; *Dominicensis* in Hayti; and *A. venusta* var. *unicolor* Pfr. in Demerara. We mention only those examples which are most likely to be erroneously referred to other islands.

We suppose the following species, which have been described by one of us, to be natives of Jamaica, but they are not certainly known to us as such. *Cyclostoma Newcombianum* was received from Dr. Newcomb as a Jamaica shell. *Cyclostoma aurora* formed a part of a valuable collection of the shells of Jamaica, which had been made by the late Mrs. W. J. Wilkinson. *Cyclostoma Tappanianum* was presented to us by R. G. Marshall, Esq., of Morant Bay, being the only terrestrial species in a small collection of supposed Jamaica shells, which belonged to the late Mr. Houseman, a musician, in Kingston.

The following errata occur in No. 2: On p. 55 erase the 13th line. At the bottom of p. 56, we neglected to mention *Cyclostoma asperulum* as belonging to the group of shells there mentioned.

# CATALOGUE

## OF THE

### LAND SHELLS WHICH INHABIT JAMAICA.

BY C. B. ADAMS,  
PROFESSOR OF ZOOLOGY, ETC., IN AMHERST COLLEGE, MASSACHUSETTS.

APRIL,

1861.

#### FAMILY CYCLOSTOMIDÆ.

##### CYCLOSTOMA.

- |  |  |
|--|--|
| <p>§ 1.</p> <p>1. <i>C. anomalum</i> Ad.</p> <p>§ 2.</p> <p>2. <i>C. pulchrum</i> Wood.</p> <p>3. <i>C. fimbriatulum</i> Sowb.<br/> <sup>a</sup> var. <i>docens</i> Ad.<br/> <sup>b</sup> var. <i>albinodatum</i> Ad.</p> <p>4. <i>C. Chittyi</i> Ad.</p> <p>5. <i>C. amabile</i> Ad.</p> <p>6. <i>C. Hillianum</i> Ad.<br/> <sup>a</sup> var. <i>aculeosum</i> Ad.<br/> <sup>b</sup> var. <i>leporilabre</i> Ad.</p> <p>7. <i>C. lincinellum</i> Lam.<br/> <sup>a</sup> Syn. (?) <i>C. spinulosum</i> Ad.</p> <p>8. <i>C. Moussonianum</i> Ad.</p> <p>9. <i>C. scabriculum</i> Sowb.<br/> <sup>a</sup> Syn. <i>C. amandum</i> Ad.</p> <p>10. <i>C. lincinum</i> Linn.</p> <p>11. <i>C. lima</i> Ad.</p> <p>12. <i>C. Blandianum</i> Ad.</p> | <p>13. <i>C. retrorsum</i> Ad.</p> <p>14. <i>C. pisum</i> Ad.<br/> <sup>a</sup> Syn. <i>C. virginicum</i> Ad.</p> <p>§ 3.</p> <p>15. <i>C. variabile</i> Ad.<br/> <sup>a</sup> var. <i>concentricum</i> Ad.</p> <p>16. <i>C. intermedium</i> Ad.</p> <p>17. <i>C. Grayanum</i> Ad.<br/> <sup>a</sup> Syn. <i>C. obscurum</i> Gray.</p> <p>18. <i>C. serriferum</i> Ad.</p> <p>19. <i>C. granosum</i> Ad.<br/> <sup>a</sup> Syn. <i>C. nodulosum</i> Ad.<br/> <sup>b</sup> var. <i>aberrans</i> Ad.</p> <p>20. <i>C. pulchrius</i> Ad.<br/> <sup>a</sup> Syn. <i>C. Binneyanum</i> Pfr.</p> <p>21. <i>C. mutatum</i> Ad.<br/> <sup>a</sup> Syn. <i>C. articulatum</i> Sowb.</p> <p>22. <i>C. mirabile</i> Wood.<br/> <sup>a</sup> Syn. (?) <i>C. decussatum</i> Ad.</p> <p>23. <i>C. mirandum</i> Ad.</p> <p>24. <i>C. moribundum</i> Ad.</p> <p>25. <i>C. monstrosum</i> Ad.</p> |
|--|--|

## ‡ 4.

26. *C. Vilkinsoni* Ad.  
 27. *C. modestum* Ad.  
 28. *C. Campbellii* Ad.  
 29. *C. avena* Ad.  
 30. *C. Shepardianum* Ad.  
 31. *C. xanthostoma* Sowb.  
     <sup>a.</sup> var. *albiflabre* Ad.  
 32. *C. tenuistriatum* Ad.  
 33. *C. ignilabre* Ad.  
     <sup>a.</sup> var. *albiflabre* Ad.

## ‡ 5.

34. *C. Newcombianum* Ad.  
 35. *C. fascia* Gray.  
     <sup>a.</sup> var. *proximum* Ad.  
 36. *C. Augustæ* Ad.  
     <sup>a.</sup> var. *nitens* Ad.  
     <sup>b.</sup> var. *tentudineum* Ad.  
     <sup>c.</sup> var. *rufilabre* Ad.  
 37. *C. sagittiferum* Ad.  
 38. *C. thysanoraphe* Sowb.  
 39. *C. Jayanum* Ad.  
     Syn. *C. solidum* Ad. non Mks.  
     <sup>a.</sup> var. *rufilabre* Ad.  
     <sup>b.</sup> var. *virgilabre* Ad.  
 40. *C. Redfieldianum* Ad.  
 41. *C. labeo* Müll.  
 42. *C. Humphreysianum* Pfr.  
     Syn. *C. pictum* Sowb.  
 43. *C. interruptum* Lam. non  
     Deless.  
     Syn. *C. ambiguum* Deless.  
     Chenu. non Lam.  
 44. *C. Chevalieri* Ad.  
     <sup>a.</sup> var. *album* Ad.  
     <sup>b.</sup> var. *virgatum* Ad.

## ‡ 6.

45. *C. album* Lam.  
     <sup>a.</sup> var. *fuscum* Ad.  
 46. *C. Bronnii* Ad.  
     <sup>a.</sup> var. *fuscolineatum* Ad.  
 47. *C. Banksianum* Sowb.  
     <sup>a.</sup> var. *hyacinthinum* Ad.

## ‡ 7.

48. *C. Yallahense* Ad.  
 49. *C. lamellosum* Ad.  
 50. *C. tectilabre* Ad.

## ‡ 8.

51. *C. pauperatum* Ad.  
 52. *C. simulans* Ad.  
 53. *C. crenulosum* Ad.  
 54. *C. columna* Wood.  
     Syn. (?) *C. S-foveatum* Ad.  
 55. *C. Saulise* Sowb.  
 56. *C. sericinum* Ad.  
 57. *C. maritimum* Ad.  
 58. *C. aurora* Ad.  
 59. *C. Tappanianum* Ad.  
 60. *C. Adamsi* Pfr.  
 61. *C. secundum* Ad.  
     <sup>a.</sup> var. *distinctum* Ad.  
 62. *C. Griffithianum* Ad.  
 63. *C. mordax* Ad.  
 64. *C. muticum* Ad.  
 65. *C. armatum* Ad.  
 66. *C. papyraceum* Ad.  
     <sup>a.</sup> var. *abbreviatum* Ad.

## ‡ 9.

67. *C. Duffianum* Ad.  
 68. *C. corrugatum* Sowb.  
 69. *C. jugosum* Ad.  
 70. *C. pallescens* Ad.  
 71. *C. subrugosum* Sowb.  
 72. *C. Jamaicense* Chem.  
 73. *C. seminudum* Ad.  
 74. *C. varians* Ad.  
 75. *C. crassum* Ad.  
 76. *C. perpallidum* Ad.  
 77. *C. asperulum* Sowb.  
 78. *C. dubiosum* Ad.  
 79. *C. suturale* Sowb.

STOASTOMA.

‡ 1.

80. *S. Agassizianum* Ad.  
81. *S. Philippianum* Ad.

‡ 2.

82. *S. Gouldianum* Ad.  
83. *S. Vilkinsoniae* Ad.  
84. *S. Tappanianum* Ad.  
85. *S. Blandianum* Ad.  
86. *S. Hollandianum* Ad.  
87. *S. Anthonianum* Ad.  
88. *S. Fadyenianum* Ad.  
89. *S. Petitianum* Ad.  
90. *S. Pfeifferianum* Ad.  
91. *S. Cumingianum* Ad.  
92. *S. Chittyianum* Ad.  
93. *S. pisum* Ad.  
94. *S. Lindsleyanum* Ad.  
95. *S. Redfieldianum* Ad.  
96. *S. Moricandianum* Ad.  
97. *S. Jayanum* Ad.  
98. *S. Leanum* Ad.

LUCIDELLA.

99. *L. aureola* Gray.  
a. *var. granulosa* Ad.

TROCHATELLA.

100. *T. Tankervillii* Gray.  
101. *T. pulchella* Gray.  
a. *var. multicarinata* Ad. |  
b. *var. nobilis* Ad.  
102. *T. Grayana* Pfr.  
103. *T. Josephinae* Ad.  
a. *var. pulchra* Ad.  
104. *T. tenuis* Ad.

HELICINA.

‡ 1.

105. *H. palliata* Ad.  
a. *var. labiosa* Ad.  
106. *H. Brownii* Gray.  
107. *H. consanguinea* Ad.  
a. *var. soror* Ad.  
108. *H. hirsuta* Ad.  
109. *H. microstoma* Ad.  
110. *H. Hollandi* Ad.  
111. *H. pusilla* Ad.  
112. *H. macilenta* Ad.

‡ 2.

113. *H. maxima* Sowb.  
a. *var. citrina* Ad.  
114. *H. nobilis* Ad.  
115. *H. albolabris* Ad.  
116. *H. citrinolabris* Ad.  
117. *H. dubiosa* Ad.  
a. *var. intermedia* Ad.  
118. *H. solitaria* Ad.  
Syn. *H. Guildingiana* Pfr.  
119. *H. affinis* Ad.  
120. *H. megastoma* Ad.  
121. *H. Gossei* Pfr.

‡ 3.

122. *H. Adamsiana* Pfr.  
123. *H. depressa* Gray.  
Syn. *H. Leana* Ad.  
a. *var. valida* Ad.  
124. *H. lineata* Ad.

‡ 4.

125. *H. neritella* Lam.  
a. *var. angulata* Ad.  
126. *H. ampliata* Ad.  
127. *H. Jamaicensis* Sowb.  
128. *H. aurantia* Gray.

‡ 5.

129. *H. costata* Sowb.

## TRUNCATELLA.

130. *T. scalaris* Mich.  
     *Syn. T. Cumingii* Ad.  
     *Syn. T. costata* Pfr.  
 131. *T. modesta* Ad.  
 132. *T. Adamsi* Pfr.  
     *Syn. T. scalariformis* Ad.  
 133. *T. succinea* Ad.

## GEOMELANIA.

- § 1.  
 134. *G. Greyana* Ad.  
 § 2.  
 135. *G. fortis* Ad.  
 136. *G. Jamaicensis* Pfr.  
 137. *G. magna* Ad.  
 138. *G. procera* Ad.  
 139. *G. gracilis* Ad.  
     *a. var. parva* Ad.  
 140. *G. typica* Ad.  
     *a. var. pygmaea* Ad.
141. *G. expansa* Ad.  
 142. *G. affinis* Ad.  
 143. *G. media* Ad.  
 144. *G. vicina* Ad.  
     § 3.  
 145. *G. minor* Ad.  
 146. *G. Hilliana* Ad.  
 147. *G. exilis* Ad.  
     § 4.  
 148. *G. pauperata* Ad.  
 149. *G. Beardsleana* Ad.  
 150. *G. pygmaea* Ad.  
     § 5.  
 151. *G. conica* Ad.  
 152. *G. pyramidata* Ad.  
     § 6.  
 153. *G. costulosa* Ad.  
 154. *G. striosa* Ad.  
 155. *G. elegans* Ad.

## FAMILY HELICIDÆ.

## CYLINDRELLA.

- § 1.  
 156. *C. gracilis* Wood.  
 157. *C. elongata* Chem.  
     *Syn. C. Cumingii* Ad.  
     *Syn. C. Chemnitziana (Helix)* Fer.  
 § 2.  
 158. *C. Agnesiana* Ad.  
     *a. var. diminuta* Ad.  
 159. *C. alba* Ad.  
     *a. var. striatula* Ad.  
 160. *C. subula* Fer.  
 [161. *C. alabastrina* Pfr.  
 162. *C. Humboldtiana*, var.  $\beta$  Pfr.  
 163. *C. variegata*, var.  $\gamma$  Pfr.]
- § 3.  
 164. *C. seminuda* Ad.  
 165. *C. Robertsi* Ad.  
 166. *C. costulata* Ad.  
 167. *C. costulosa* Ad.  
     § 4.  
 168. *C. Hydeana* Ad.  
     *Syn. Bulimus Gossei* Pfr.  
     § 5.  
 169. *C. Gossei* Pfr.  
 170. *C. Maugeri* Wood.  
     *a. var. nigrescens* Ad.  
     *b. var. solida* Ad.  
     *c. var. levis* Ad.  
     *d. var. tricolor* Ad.



- e. var. *crassa* Ad.
- f. var. *unicincta* Ad.
- g. var. *bicincta* Ad.
- h. var. *concinna* Ad.
- i. var. *sinuata* Ad.
- j. var. *rufilabris* Ad.
- k. var. *etirina* Ad.
- l. var. *fusiformis* Ad.
- m. var. *albida* Ad.
- n. var. *valida* Ad.
- o. var. *unicolor* Ad.
- p. var. *striatula* Ad.
- q. var. *striata* Ad.
- r. var. *corpulenta* Ad.
- s. var. *fusca* Ad.
- t. var. *conica* Ad.
- u. var. *tesselata* Ad.
- v. var. *cincta* Ad.
- w. var. *gracilis* Ad.
- x. var. *integra* Ad.

† 6.

- 71. *C. Hollandi* Ad.
- a. var. *Angusta* Ad.
- 72. *C. procera* Ad.
- 73. *C. montana* Ad.
- 74. *C. rosca* Pfr.
- a. var. *magna* Ad.
- b. var. *major* Ad.
- c. var. *fortis* Ad.
- d. var. *ambigua* Ad.
- 175. *C. cylindrus* Chem.
- 176. *C. rubella* Ad.
- 177. *C. zonata* Ad.
- 178. *C. aspera* Ad.
- 179. *C. brevis* Pfr.
- a. var. *obesa* Ad.
- b. var. *columna* Ad.
- c. var. *intermedia* Ad.
- 180. *C. Gravesii* Ad.
- 181. *C. lata* Ad.
- a. var. *producta* Ad.
- 182. *C. nobilior* Ad.
- 183. *C. carnea* Ad.
- a. var. *cerina* Ad.
- 184. *C. sanguinea* Pfr.
- 185. *C. pupaeformis* Ad.
- † 7.
- 186. *C. humilis* Ad.

- 187. *C. inornata* Ad.
- 188. *C. simplex* Ad.

† 8.

- 189. *C. pusilla* Ad.
- 190. *C. rubra* Ad.
- 191. *C. elatior* Ad.
- 192. *C. princeps* Ad.
- 193. *C. Dunkeri* Pfr.
- 194. *C. similis* Ad.
- 195. *C. tenella* Ad.
- 196. *C. tenera* Ad.

# ACHATINA.

- 197. *A. solitaria* Ad.
- 198. *A. ligata* Ad.
- 199. *A. Jamaicensis* Pfr.
- 200. *A. procera* Ad.
- 201. *A. Griffithii* Ad.
- 202. *A. Philippiana* Pfr.
- 203. *A. elegans* Ad.
- 204. *A. venusta* Ad.
- 205. *A. leucozonias* Walch.
- 206. *A. Dominicensis* Gm.
- 207. *A. nitida* Ad.
- 208. *A. angiotoma* Ad.
- 209. *A. Ingallsiana* Ad.
- 210. *A. unicolor* Ad.
- 211. *A. Gayana* Ad.
- 212. *A. nemorensis* Ad.
- 213. *A. similis* Ad.
- 214. *A. Phillipsii* Ad.
- 215. *A. arcuata* Pfr.
- 216. *A. puella* Ad.
- 217. *A. tenera* Ad.
- 218. *A. longispira* Ad.
- 219. *A. proxima* Ad.
- 220. *A. Blandiana* Ad.
- 221. *A. propinqua* Ad.

222. *A. oculans* Ad.223. *A. perplexa* Ad.224. *A. Gossei* Pfr.225. *A. costulata* Ad.226. *A. gracilior* Ad.227. *A. costulosa* Ad.228. *A. curvilabris* Pfr.229. *A. vicina* Ad.230. *A. pellucens* Ad.231. *A. levis* Ad.232. *A. micans* Ad.233. *A. iota* Ad.234. *A. octona* Chem.235. *A. striosa* Ad.

## SPIRAXIS.

236. *S. costulosa* Ad.237. *S. inusitata* (Achatina) Ad.238. *S. mirabilis* (Bulimus) Ad.239. *S. anomala* (Achatina) Ad.240. *S. brevis* Ad.241. *S. aberrans* (Achatina) Pfr.a. var. *unicolor* Ad.

## BULIMUS.

† 1.

242. *B. minimus* Ad.243. *B. striatellus* Ad.244. *B. terebella* Ad.245. *B. pauperculus* Ad.246. *B. hortensis* Ad.247. *B. octonoides* Ad.248. *B. pallidus* Ad.249. *B. monodon* Ad.250. *B. nitidiusculus* Ad.251. *B. subula* Pfr.Syn. *B. procerus* † Ad.252. *B. læviusculus* Ad.

† 2.

253. *B. rufescens* Gray.254. *B. crubescens* Pfr.255. *B. immaculatus* Ad.256. *B. zebra* Müll.Syn. *B. undatus* Brug.

† 3.

257. *B. macrospira* Ad.

## PUPA.

† 1.

258. *P. exilis* Ad.

† 2.

259. *P. fallax* (?) Say.260. *P. lata* Ad.261. *P. contracta* (?) Say.262. *P. tenuidens* Ad.263. *P. hexodon* Ad.264. *P. servilis* Gould.265. *P. Jamaicensis* Ad.

† 3.

266. *P. striatella* (?) Pfr.

## SUCCINEA.

267. *S. angustior* Ad.268. *S. Sagra* (?) Orb.269. *S. latior* Ad.270. *S. contorta* Ad.

## HELIX.

† 1.

271. *H. Martiniana* Pfr.272. *H. peracutissima* Ad.273. *H. soror* Fer.274. *H. cara* Ad.a. var. *media* Ad.b. var. *amabilis* Ad.

275. *H. Chittyana* Ad.  
 276. *H. patina* Ad.  
      $\alpha$ . var. *nobilis* Ad.  
 277. *H. fluctuata* Ad.  
 278. *H. ingens* Ad.  
      $\alpha$ . var. *imperfurata* Ad.  
      $\beta$ . var. *indigna* Ad.  
 279. *H. acuta* Lam.  
      $\alpha$ . var. *acutissima* Lam.  
 280. *H. fuscolabris* Ad.  
 281. *H. lucerna* Müll.  
 282. *H. fortis* Ad.  
 283. *H. Okeniana* Pfr.  
 284. *H. Swainsoniana* Ad.  
 285. *H. tridentina* Fer.  
 286. *H. Bronni* Pfr.  
 287. *H. valida* Ad.  
 288. *H. consanguinea* Ad.  
      $\alpha$ . var. *imperfurata* Ad.  
      $\beta$ . var. *carinata* Ad.  
 289. *H. picturata* Ad.  
 290. *H. invalida* Ad.  
 291. *H. sinuata* Müll.  
      $\alpha$ . var. *propenuda* Ad.  
      $\beta$ . var. *candescens* Ad.  
 292. *H. strangulata* Ad.  
 293. *H. anomala* Pfr.  
      $\alpha$ . var. *pallascens* Ad.  
      $\beta$ . var. *convexa* Ad.  
 294. *H. Bainbridgei* Pfr.  
      $\alpha$ . var. *pretiosa* Ad.  
 295. *H. Spengleriana* Pfr.  
     § 2.  
 296. *H. Redfieldiana* Ad.  
     § 3.  
 297. *H. aspera* Fer.  
     § 4.  
 298. *H. Jamaicensis* Chem.  
     Syn. *H. pulla* Gm.  
     § 5.  
 299. *H. angustata* Fer.  
     May, 1851.—10.  
 300. *H. Cubensis*, var. 9 Pfr.  
 301. *H. tunicata* Ad.  
 302. *H. Buddiana* Ad.  
 303. *H. MacMurrayi* Ad.  
 304. *H. munda* Ad.  
 305. *H. columellata* Ad.  
 306. *H. tenerrima* Ad.  
 307. *H. graminicola* Ad.  
 308. *H. nemoraloides* Ad.  
 309. *H. pulchrior* Ad.  
 310. *H. Gossei* Pfr.  
 311. *H. Blandiana* Ad.  
 312. *H. subconica* Ad.  
 313. *H. fuscocincta* Ad.  
 314. *H. virginea* Ad.  
 315. *H. Jacobensis* Ad.  
 316. *H. fuscula* Ad.  
     § 6.  
 317. *H. immunda* Ad.  
 318. *H. rufula* Pfr.  
 319. *H. ptychodes* Pfr.  
     § 7.  
 320. *H. alveus* Ad.  
     § 8.  
 321. *H. perdepressa* Ad.  
 322. *H. brevior* Ad.  
     Syn. *H. depressa* Ad.  
 323. *H. sincera* Ad.  
 324. *H. diminuta* Ad.  
 325. *H. apex* Ad.  
 326. *H. inconspicua* Ad.  
 327. *H. peraffinis* Ad.  
 328. *H. Boothiana* Pfr.  
     Syn. *H. pellucida*  
 329. *H. spreata* Ad.  
      $\alpha$ . var. *errans*.  
 330. *H. turbiniiformis* Pfr.  
     Syn. *H. subpyramidalis* Ad.  
 331. *H. Anthoniana* Ad.

- |                            |                             |
|----------------------------|-----------------------------|
| 332. H. angustispira Ad.   | 346. H. torrefacta Ad.      |
| 333. H. brevis Ad.         | 347. H. connectens Ad.      |
| 334. H. Hollandi Ad.       | 348. H. epistyliulum Ad.    |
| 335. H. similis Ad.        | § 10.                       |
| 336. H. arboreoides Ad.    | 349. H. simulans Ad.        |
| Syn. H. Haldemaniana Pfr.  | 350. H. dioscoricola Ad.    |
| 337. H. ambigua Ad.        | § 11.                       |
| 338. H. osculans Ad.       | 351. H. paludosa Pfr.       |
| a. var. delaminata Ad.     |                             |
| § 9.                       |                             |
| 339. H. lamellifera Ad.    | PROSERPINA.                 |
| 340. H. pila Ad.           | 352. P. discoidea Ad.       |
| 341. H. Foremaniana Ad.    | 353. P. opalina (Helix) Ad. |
| 342. H. Cookiana Gm.       | 354. P. nitida Sowb.        |
| 343. H. epistylioides Fer. | a. var. planulata Ad.       |
| 344. H. alligans Ad.       | 355. P. pulchra Ad.         |
| 345. H. epistylium Müll.   | 356. P. bidentata Ad.       |
| a. var. minor Ad.          | 357. P. pisum Ad.           |
| b. var. delaminata Ad.     |                             |

## FAMILY AURICULIDÆ.

## MELAMPUS.

- |                           |                         |
|---------------------------|-------------------------|
| 358. M. coniformis Brug.  | 361. M. coronatus Ad.   |
| 359. M. flavus Gm.        | 362. M. cingulatus Pfr. |
| Syn. Auricula monile Lam. | PEDIPESES.              |
| 360. M. pusillus Gm.      | 363. P. quadridens Pfr. |
| Syn. Auricula nitens Lam. | 364. P. ovalis Ad.      |

# CATALOGUE OF THE FRESH WATER SHELLS WHICH INHABIT JAMAICA.

- 
- 365. *NERITINA punctulata* Lam.
  - 366.       "       *Jamaicensis* Ad.
  - 367.       "       *tenebricosa* Ad.
  - 368. *MELANOPSIS lineolata* Gray.
  - 369. *MELANIA spinifera* Ad.
  - 370. *VALVATA pygmæa* Ad.
  - 371.       "       *inconspicua* Ad.
  - 372. *PALUDINA rivularis* Ad.
  - 373.       "       *Jamaicensis* Ad.
  - 374. *AMPULLARIA fasciata* (?) Lam.
  - 375. *PLANORBIS MacNabianus* Ad.
  - 376.       "       *Redfieldi* Ad.
  - 377.       "       *Haldemani* Ad.
  - 378.       "       *dentiferus* Ad.
  - "       *var. edentatus* Ad.
  - 379.       "       *pallidus* Ad.
  - 380.       "       *decipiens* Ad.
  - 381.       "       *affinis* Ad.
  - 382.       "       *humilis* Ad.
  - 383. *ANCYLUS obscurus* (?) Hald.
  - 384.       "       *obliquus* Ad.
  - 385. *PHYSA Sowerbyana* (?) Orb.
  - 386.       "       *Jamaicensis* Ad.
  - 387. *LIMNÆA umbilicata* Ad.
  - 388. *CYCLAS pygmæa* Ad.
  - 389.       "       *Veatleyi* Ad.

*Notice.*—The Hon. Edward Chitty of Jamaica having furnished the writer with his duplicates of the land and fresh-water shells of Jamaica, so far as necessary for making out suites, a few collections, each containing nearly all the discovered species,—about 500 species and varieties,—will be put up for sale, at prices from \$100 to \$150. Suites of single genera, and miscellaneous parcels for selection, (with the privilege of returning such shells as may not be wanted,) can also be furnished. It is proper to add, that the object of the sales is not pecuniary profit, but to meet the expenses of an illustrated monograph, the outlay for which probably will much exceed the receipts.

C. B. ADAMS, *Amherst, Massachusetts.*

DESCRIPTIONS of new species of Birds of the genera *Coniostrom*, *D'Orb. et Lafr.*, *Embernagra*, *Less.* and *Xanthornus*, *Briss.*, together with a List of other species not heretofore noticed as being found within the limits of the United States. By GEO. N. LAWRENCE. Read 28th April, 1851.

CONIROSTRUM ORNATUM.

CHESNUT SHOULDERED WARBLER. Plate V. fig. 1.

SPECIFIC CHARACTER. Head yellow, general color cinereous, lesser wing coverts bright chesnut.

DESCRIPTION. Front, crown, sides of the head and throat dull yellow, the feathers on the forehead orange at base, a dusky spot between the bill and the eye, wings cinereous brown, primaries and secondaries narrowly edged with white, tertiaries with broader margins of light brownish ash; tail rounded and of the same color as the wings, the outer feather narrowly margined with white, most of the others with grey, the bend of the wing ornamented with a spot of bright chesnut red, under wing coverts white: the upper plumage dark ash, lighter on the rump, where some of the feathers are lightly marked with yellow, under plumage greyish white.

Bill dark brown, legs and feet bluish lead color.

Length  $4\frac{1}{4}$  inches, wing from flexure  $2\frac{1}{8}$  in., tail 2 in., tarsus  $\frac{5}{8}$  in., bill above  $\frac{5}{16}$  in.

Two specimens which I examined agreed in plumage and were probably males.

EMBERNAGRA RUFIVIRGATA.

BROWN STRIPED OLIVE FINCH. Plate V. fig. 2.

SPECIFIC CHARACTER. Above olive, a band of rufous brown runs along the edge of the crown as far as the nape, when it is intersected by a narrow stripe of the same color which begins at the eye.

**DESCRIPTION.** Upper plumage greenish olive, a broad stripe of rufous brown commences at the base of the upper mandible runs along the side of the crown and extends to the nape, where it is joined by a narrow line of the same color which commences at the eye, between these is a stripe beginning at the bill, which is greyish white in front of the eye, over and beyond it ash, a dusky line between the bill and the eye, eye-lids whitish, a small space of grey on the forehead, close to the bill; wings olive brown margined with yellowish green, edge of the shoulders and under covering of the wings yellow, tail olive edged with greenish yellow; it consists of twelve feathers, and is graduated, shafts of the wing and tail feathers reddish brown on their outer surface, inner white; plumage beneath cinereous, darker on the sides and under the wings, lighter on the breast, side of the neck, lower part of abdomen and under tail coverts tinged with pale rufous; upper mandible light brown, lower pale yellow and brown at the point; legs, feet, and claws, brownish yellow. Sex not known.

Length 6 inches, wing from flexure,  $2\frac{1}{4}$  in., tail  $2\frac{3}{4}$  in., tarsus  $\frac{1}{2}$  in., bill from front  $\frac{1}{2}$  in., middle toe and claw  $\frac{3}{4}$  in., hind toe and claw  $\frac{5}{8}$  in. nearly, 4th primary longest, 3d, 4th, and 5th nearly equal.

*XANTHORNUS AFFINIS.*

*LESSER ORCHARD ORIOLE.*

Adult male. Head, neck, and upper part of back deep glossy black; wings and tail brownish black; the former margined with white; breast, abdomen, lesser wing coverts, lower part of back, and tail coverts, dark chesnut red; greater wing coverts black, edged with reddish white; upper mandible black, lower blue at the base, dark at the point; legs and feet bluish.

The young male has the throat and a line between the

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bill and eye black ; head, lower part of back and tail, greenish yellow ; all the under surface of the body yellow, tinged with reddish on the abdomen ; back brown feathers edged with dull green ; wings brown margined with white.

Length of the male  $6\frac{1}{2}$  inches, wing from flexure, 3 in., bill from front  $\frac{9}{16}$  in., tarsus  $\frac{3}{4}$  in., tail  $2\frac{1}{4}$  in. ; 2d quill feather longest, 2d and 3d nearly equal, 1st shorter than 4th ; 1st quill relatively shorter than in *X. spurius*, in which species the 2d and 3d quills are equal and longest, the 1st and 4th equal.

This bird closely resembles the Orchard Oriole (*X. spurius* Linn.) but is readily distinguished by its smaller size ; in color and markings there is no perceptible difference, it being in fact a perfect miniature representative of the northern species.

Habitat, Texas and Mexico ; it was found breeding in the former in April.

The above new species were collected by Capt. J. P. McCown, U. S. A., to whom I am also indebted for the opportunity of bringing to notice the following additions to our Fauna. They were obtained by him during the past year, while stationed on the Rio Grande in Texas.

*LIST OF Birds from Texas, with short specific descriptions.*

1. *Chordeiles Brasiliensis*, (Gmelin,) resembles our common Night Hawk, (*C. Virginianus*,) being similarly marked with white on the throat, wings and tail ; it is, however, smaller, the plumage generally is of a lighter shade, the grey colors predominating. Length of the male  $8\frac{1}{2}$  in., wing from flexure  $6\frac{1}{2}$  in. Female rather larger, being  $8\frac{1}{2}$  in. long, wing 7 inches.

2. *Picolaptes brunneicapillus*. La Fresnaye. Color of the crown and hind part of neck of a fine deep brown, back lighter



striped with linear spots of white ; wings dark brown, spotted with white, two central tail feathers light brown, with bars of a darker shade ; the other tail feathers are dark brown conspicuously marked with pure white spots. Length  $8\frac{1}{2}$  in., wing  $3\frac{1}{4}$  in.

Female smaller, and similarly marked, but the colors not so pure.

3. *Pyrocephalus rubineus*. Bodd. *Muscicapa coronata*. Gmel. A very beautiful Flycatcher, head and all the under plumage bright vermillion ; back, wings, and tail, dark brown. Length  $5\frac{1}{2}$  in.

4. *Cyanocorax Yucas*. Bodd. *Corvus Peruvianus*. Gmel. In this handsome Jay the prevailing colors are green and yellow, instead of blue, as in most of our species.

Front white, crown blue ; region of the eye, throat and neck black ; back, wings, and under plumage, light green ; central tail feathers dark green ; under wing coverts, vent and outer tail feathers yellow. Length  $12\frac{1}{2}$  in.

5. *Quiscalus macrourus*. Swain. This species exceeds in size the Great Crow Black Bird. (Q major). Male. Head, neck, upper part of back and under plumage glossy violet blue, lower part of back metallic bluish green, wings black glossed with green, tail black and much graduated ; iris yellow, bill and legs black.

Length  $18\frac{1}{2}$  in., wing  $7\frac{1}{2}$  in., tail  $8\frac{1}{2}$  in., tarsus 2 in., bill above  $1\frac{3}{8}$  in.

Female. Head and neck above, dark brown ; a line of light rufous extends from the front over and beyond the eyes ; back, under tail-coverts and sides blackish brown, glossed with green, wings and tail dark umber brown, breast and abdomen rufous brown ; throat and neck of the same color, but much lighter ; bill and legs black.

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Length 13 in., wing 6 in., tail 6 in., tarsus  $1\frac{1}{2}$  in., bill  $1\frac{1}{2}$  in.

6. *Icterus cucullatus*. Swainson. Front, throat, back, wings and tail black; rest of the plumage orange yellow; wing coverts with white bands. Length 8 inches.

7. *Cardinalis sinuatus*. Bonap. General color dark ash; front, throat, under lining of the wings, breast and thighs, light vermillion; crest long and pointed, of a dull red, darker at the end, wings blackish brown, edged with dark red, tail brown, tinged throughout with dull red, under tail coverts, white, marked with light vermillion, bill very stout. Length 9 inches, wing 4 inches.

8. *Centurus elegans*. Swain. Crown red, front and hind head yellow, back banded with white and black; wings brown, with a white band, upper tail coverts white, central tail feathers black, outer brown with white markings, under plumage ash, tinged with yellow on the abdomen. Length  $8\frac{1}{2}$  inches.

9. *Columba flavirostris*. Wagler. Head, neck, upper part of breast and base of lesser wing coverts reddish purple, upper part of back and scapularies umber brown, tail black, abdomen, lining of wings and lower part of back slate blue; wings blackish brown. Length 15 inches, wing from flexure 8 inches.

10. *Ortalia vetula*. Wagler. This bird, known as the Mexican Pheasant, is common throughout Central America. Head, dark ash, back and upper part of breast olive green, wings of the same color, except some of the primaries, which are rufous brown; tail dark green terminating in white;

under plumage dull rufous, paler on the abdomen. Length 23 in., wing 8 inches.

11. *Dendrocygna Autumnalis*. (Linn.) Eyton. This duck is found abundantly in Mexico, where it is also domesticated ; it frequents the land more than is usual with its tribe, having long and slender legs well adapted for walking. It has been found breeding on the Rio Grande. Crown, neck, back and breast chesnut, throat greyish white, abdomen, wings, and tail black, lesser wing coverts rufous yellow, greater ash grey, terminating in white. Length 21 inches, wing 10 in., tarsus  $2\frac{1}{8}$  in.

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*Additions to North American Ornithology.*

By GEORGE N. LAWRENCE.

No. 1.

THALASSIDROMA FREGETTA (SOL.) KHUL, MONOGR.

Do. LEUCOGASTER, GOULD.

WHITE-BELLIED STORMY PETREL.

Description. Head and wings black ; neck, breast and back dusky bluish-ash or dark plumbeous ; wing coverts brown ; tail perfectly even, with the two central feathers black, the others white at the base for half their length, terminating with black ; abdomen, inside covering of wings and rump white ; bill and legs black.

The claws are peculiarly shaped, being depressed, ovate, and as broad as they are long.

Length about 8 inches, wing from flexure 6 in., tail 3 in., tarsus  $1\frac{1}{2}$  in.

Seven specimens of the above were captured with a hook and line, by the captain of a vessel, while at anchor in the harbor of St. Marks, Florida. One was obtained from him by Mr. John Hooper, of Brooklyn, L. I., from whom I received it.

They were observed about the vessel during two days, after which none were met with.

This species appears to have a wide geographical range. It is figured by Gould, in the "Birds of Australia;" and what is equally remarkable, he speaks of our common species (*Th. Wilsonii*) as being found there, and figures it in the same work.

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CERYLE AMERICANA (GMEL.) BOIE.

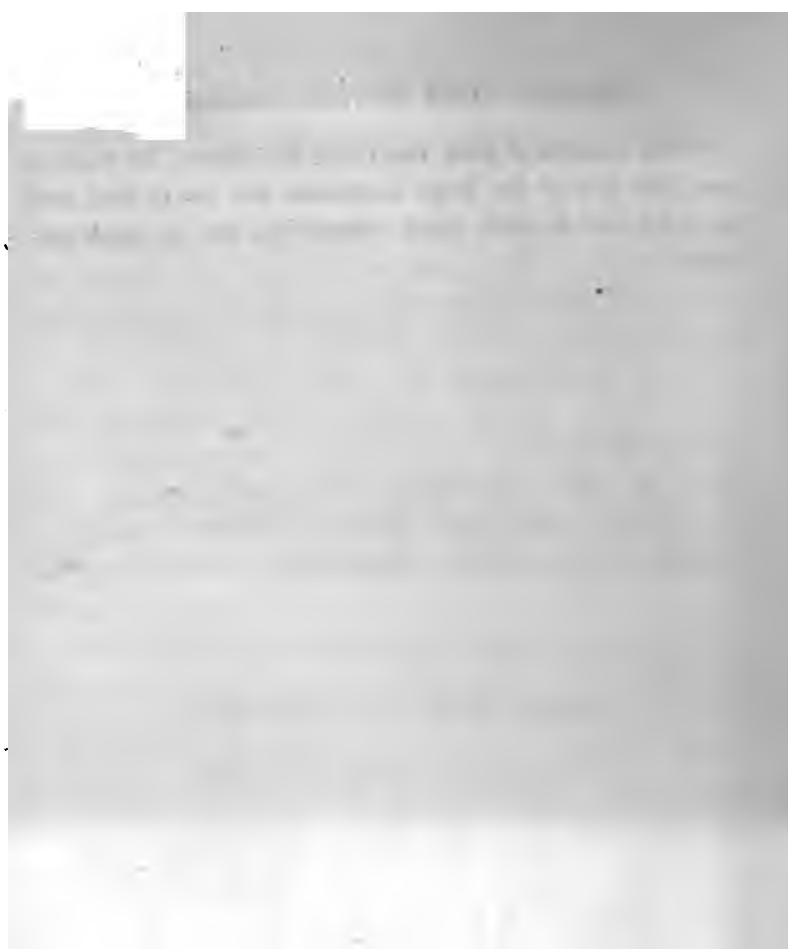
WHITE AND GREEN KINGFISHER.

Upper plumage dark glossy green, sparingly marked with small white spots; the head duller, lightly sprinkled with greyish white; a band of white on the hind neck; wings dark green, marked with spots of white; two central tail feathers dark green, the others white, terminating with irregular markings of dull green; throat white; a broad band of bright rufous crosses the breast; abdomen, sides, and under tail coverts white, spotted with green; bill and legs dusky.

Length  $8\frac{1}{2}$  inches, wing from flexure  $3\frac{3}{8}$  in., bill from front  $1\frac{1}{2}$  in., tarsus  $\frac{1}{2}$  in., tail  $2\frac{1}{2}$  in.

This description is taken from a specimen presented to the Lyceum by Mr. Chas. Wright, who procured it in Texas, on the Rio Grande, where they are not uncommon. In his communication accompanying the specimen, he remarks as follows:

"The expanse of wing was about 20 inches. Its voice is much like that of the large kingfisher, but not so loud, and the notes not in such quick succession, nor so much prolonged."



*Descriptions of New Species of Birds, of the Genera TOXOSTOMA WAGLER, TYRANNULA SWAINSON, and PLECTROPHANES MEYER. By GEO. N. LAWRENCE. Read 8th Sept., 1851.*

TOXOSTOMA LE CONTEI.  
LE CONTE'S MOCKING BIRD.

Specific character. Light cinereous; tail brown; bill slender and much curved.

Description. The entire upper plumage, including the wings, is of a fine pearly ash; tail brown, the outside feather ash grey on the outer web and at the end; under surface light ash; throat white; sides and under tail coverts pale ferruginous; bill black; legs brownish in the dried specimen.

The feathers are of a very soft, silky texture; the bill is longer, not so stout, and much more curved than that of *T. curvirostris* Sw.; tail cuneiform.

Length, 10 inches; wing from flexure,  $3\frac{3}{4}$  in.; tail,  $4\frac{1}{4}$  in.; tarsus,  $1\frac{1}{8}$  in.; bill from front,  $1\frac{1}{4}$  in.; 4th quill longest—3d, 4th and 5th nearly equal; 1st quill  $1\frac{1}{4}$  in. shorter than the 4th.

This species was obtained in California, near the junction of the Gila and Colorado rivers, by John L. Le Conte, M. D., whose name I wish it to bear, as a tribute to his deservedly high reputation for scientific acquirements.

TYRANNULA CINERASCENS.  
ASH-COLORED FLYCATCHER.

Upper plumage cinereous olive, darker on the crown, the feathers of which are marked in their centres with brown; ear coverts bluish ash; upper tail coverts tinged with pale

rufous ; the throat, neck, and upper part of the breast is of a clear bluish grey ; abdomen, sides, inner lining of wings, and lower tail coverts, pale yellow ; wings dark umber brown, the primaries with ferruginous margins, the secondaries and tertiaries with white margins ; all the quill feathers have their inner webs edged with pale ferruginous ; wing coverts margined with greyish white, forming two bars across the wings ; tail even, the outer web of the lateral feathers greyish white, the others with their outer webs umber brown, the inner webs of all ferruginous, terminating in brown, except the two central feathers, which are entirely brown ; bill and legs black.

Length,  $7\frac{1}{4}$  in. ; wing from flexure, 4 in. ; tail,  $3\frac{1}{4}$  in. ; bill from front,  $\frac{3}{8}$  in. ; tarsus,  $\frac{7}{8}$  in.

This species is allied to *T. crinita* Linn., but differs from it in size ; the colors are much paler below, and no green in the upper plumage ; the bill is more slender, and much more depressed ; the rufous markings on the tail feathers terminate in brown, whereas in "*crinita*," they extend entirely to the end.

It was obtained by Capt. J. P. McCown, in Western Texas ; it frequents the borders of streams.

PLECTROPHANES MCCOWNII.

RUFIOUS-WINGED LARK BUNTING.

The whole upper plumage is pale rufous ash, each feather marked down the centre with brownish black ; a line of greyish white extends from the bill over the eye ; sides of the head brownish ash ; primaries and secondaries dusky ash, with margins of greyish white ; tertiaries brown, with lighter margins ; lesser wing coverts marked with rufous ; two central tail feathers dark brown, with paler edgings ; outer tail feather white, lightly marked with pale brown on the end of the outer web ; all the others white for most of their length, ter-



minating with dark brown; throat and abdomen greyish white; upper part of the breast and sides under the wings ash, tinged with pale rufous; bill almost white, tipped with brown; legs pale red.

Length of the dried specimen,  $5\frac{3}{8}$  inches; wing from flexure,  $3\frac{3}{8}$  in.; tail, 2 in.; tarsus,  $1\frac{1}{8}$  in.; bill from front,  $\frac{3}{8}$  in.

The 1st and 2d quills longest, and equal.

It gives me pleasure to bestow upon this species the name of my friend, Capt. J. P. McCown, U. S. A., from whose collections, made on the southwestern frontier, many new birds have been added to our Fauna.

Two specimens were obtained by Capt. McCown on the high prairies of Western Texas. When killed, they were feeding in company with Shore Larks. Although procured late in the spring, they still appear to be in their winter dress; in summer, I have no doubt they assume the gay and ornamented plumage of their congeners.

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*Additions to North American Ornithology.*

BY GEO. N. LAWRENCE.

No. 2.

1. *Centurus Santa-Cruzi* Bonap. Pr. Zool. Soc. 1837, p. 16.

Adult male. The back is transversely banded with black and white; wings and wing-coverts black, conspicuously barred with white; crown and occiput light crimson; front, a band on the hind neck and abdomen orange yellow; rump white; tail black, with white spots on the outer feathers; sides of the head, throat and breast olive grey.

Length,  $10\frac{1}{2}$  inches ; wing from flexure,  $5\frac{1}{2}$  in. ; tail,  $3\frac{1}{2}$  in. ; tarsus,  $\frac{3}{4}$  in. ; bill from front,  $1\frac{1}{2}$  in. '

Obtained in Western Texas, by J. W. Audubon, Esq.

2. *Culicivora atricapilla* Swain., Zool. Ill. n. s. t. 57.

Male. Upper plumage bluish grey ; entire crown glossy black ; wings dusky brown, edged with dull white ; tail black, the lateral feathers with the outer webs and tips white ; under parts pale bluish grey ; bill black ; legs dull blue.—  
Female, without the black on the top of the head.

Length,  $4\frac{1}{2}$  inches ; wing from flexure, 2 in. nearly ; tail,  $2\frac{1}{2}$  in. ; tarsus,  $\frac{3}{8}$  in. ; bill from front,  $\frac{3}{8}$  in.

Collected in Texas, by Capt. J. P. McCown, U. S. A.

3. *Spermophila albigularis* (Spix.) Sw., (Av. Bras. t. 60.)

Plumage of the back dark ash, with a tinge of rufous ; top and sides of the head black ; wings black, crossed with a broad band of white ; tail black ; under surface of the body grey, tinged with dilute rufous ; throat greyish white ; bill black, and very stout.

Length,  $4\frac{1}{2}$  inches ; wing from flexure,  $2\frac{1}{2}$  in. ; tail,  $1\frac{1}{2}$  in. ; tarsus,  $\frac{3}{8}$  in. ; bill from front,  $\frac{1}{2}$  in.

Procured in Texas, by Capt. J. P. McCown, U. S. A.

*Descriptions of New Species of COLEOPTERA, from California.*

By JOHN L. LECONTE. Read Sept. 15th, 1851.

THE present Essay contains diagnoses of nondescript species, collected by me, during the year 1850 and part of 1851.

Being desirous of making statistical comparisons between the species of the eastern and western slopes of the continent, I have taken this as the most speedy means of making known the large number of new species collected. It will be seen, that although the number previously known from Western America was but small, this was owing to the limited exploration; each locality furnishing but few kinds, which, however, are all confined within narrow limits. Thus I failed to obtain many of those already described by Eschscholtz & Mannerheim, because I was unable to visit the localities from which their specimens were collected.

My collection was made in the following manner: At San Francisco—in February, April, and part of August, (the latter month furnishing scarcely any species:) San Jose, in March; San Diego, in May, June and September; Vallecitas and the Desert of the Colorado, in October and November; Colorado River, December and March; Valley of the Gila, in January and February.

The families will succeed each other in the order most convenient for study. At present, the want of certain books prevents me from beginning with the Carabica.

Occasionally species from Oregon are introduced. The notes contain species from the interior of the continent, which serve to illustrate the Pacific species.\*

I cannot refrain from expressing my very great obligation to the junior officers of the military posts at San Diego and

\* I have omitted four species of Mordella, and two of Nemognatha for future study.

the Colorado, for the great assistance afforded me in the prosecution of my researches: assistance without which, in the present condition of California, superhuman industry might have been expended, without producing any useful results.

Whatever my labors may add to our knowledge of the laws of nature, as exemplified in California, is justly attributable to the sympathy in intellectual pursuits found among these gentlemen, in a country which has done more to debase men by materialising influences, than any other country ever settled by the European race.

## TENEBRIONIDÆ.

### EUSCHIDES.

#### *Stenomorpha* Sol. (nomen præoccupatum.)

To this genus must be referred *Asida opaca* and *Asida polita* Say (J. Ac. 3, 254.) I have besides several nondescript species from the Rocky Mountains.

1. *obovata*, nigra nitida subtiliter parce punctata, thorace lateribus rotundato, margine reflexo, elytris obovatis, dorso planiusculis, apice valde declivibus humeris rectis, margine laterali nullo. Long. .85. Flumen Gila, circa vicos Pimarum.

#### PELECYPHORUS Sol.

To this genus belongs *Asida anastomosis* Say (J. Ac. 3, 256.)

#### *A. Prosternum postice haud productum.*

##### § *Elytris dorso haud marginatis.*

1. *angulatus*,—niger subnitidus, capite minus dense punctato, thorace parce punctulato, lateribus valde rotundatis, margine reflexo, basi rotundato, angulis anticis peracutis; elytris convexis, elongatis, postice acutis, valde declivibus. Long. 1.1. San Diego.

2. *hispidulus*,—ater setis brevibus flavis parce vestitus, capite punctato, thorace punctato medio parce muricato, lateribus paulo rotundatis margine sub-reflexo, basi rotundato, elytris parce subtiliter muricatis, submarginatis, ovalibus apice acutis valde declivibus. Long. .5. Specimen unicum in deserta fluminis Colorado.

3. *hirsutus*—piceus nitidus, pilis longissimis pallidis erectis dense vestitus, thorace quadrato, parce punctato, lateri-

bus paulo rotundatis margine reflexo, basi truncato, elytris thorace parum latioribus, parce subtiliter muricatis, apice subito valde declivibus. Long. .6. In arenosis desertorum Colorado.

§§ *Elytris dorso valde marginatis.*

4. *parallelus*,—ater opacus, subtiliter muricato-punctatus, hispidusque, thorace quadrato, margine reflexo, angulis anticis peracutis, elytris dorso planiusculis, thorace vix latioribus, subparallelis, apice valde declivibus, versus marginem costa acuta utrinque abbreviata, cum margine parallela. Long. .6. Vallecitas, ad montes occidentales desertorum Colorado.

5. *marginatus*,—elongatus, obovatus, subnitidus, subtiliter parce punctulatus, thorace quadrato, lateribus rotundatis crenulatis, margine reflexo varioloso, elytris thorace paulo latioribus, parum convexis, apice acutis, modice declivibus, margine ante apicem evanescente. Long. .9. Flumen Gila.

6. *confluentis*,—niger nitidus, thorace varioloso, longiore, lateribus subangulatis reflexis, crenulatis, basi truncato, elytris impunctatis obovatis sutura elevata, dorso planis, lateribus apiceque valde declivibus, costa valde acuta antice cum margine confluyente, postice versus suturam curvata. Long. .75—.9. In deserta fluminis Colorado.

7. *carinatus*,—niger opacus, thorace longiore quadrato, medio longitudinaliter elevato, ibi et ad latera crenulata subreflexa, varioloso; elytris latis rotundato-ovatis apice valde declivibus acutisque, dorso rugosis, costa utrinque abbreviata cum margine parallela. Long. .65—.8. San Felipe, ad montes occidentales desertorum Colorado.

B. *Prosternum postice productum.*

8. *obsoletus*,—obovatus, ater subnitidus, thorace quadrato, lateribus rotundatis, variolosis, reflexis, disco par-

cuius punctato, angulis anticis peracutis, elytris thorace sesqui latioribus obsolete muricatis, apice subito valde declivibus, costula utrinque abbreviata pone medium laterali notatis, margini parallela. Long. .7. Specimen unicum ad 'Warner's' (ad montes inter mare et flumen Colorado).

9. *muricatus*,—piceus nitidus—elytris parce muricatis flavo-pilosis, lateribus minus dilatatis, acute marginatis, apice subito valde declivibus. Long. ely. .45. Ad San Diego inventus, thorace perdidit; abdomine valde punctato, pilosoque a præcedente differt.

*MICROSCHATIA* Sol.

1. *inæqualis*,—ater opacus, thorace lateribus valde rotundatis subreflexis, densissime granulato, brevissime nigro-setoso, postice versus medium retuso, elytris obovatis, thorace vix latioribus, valde inæqualibus rugosisque. Long. .6. San Diego, sat frequens.

2. *puncticollis*,—ater subnitidus, thorace lateribus valde rotundatis subreflexis, confertim varioloso-punctato, postice versus medium minus retuso, elytris inæqualibus, versus suturam apicemque lævibus. Long. .63. Ad 'Warner's.'

*ASBOLUS.*

*Mentum magnum rotundatum, antice subincisum, fissura buccalis lata. Palpi haud dilatati. Antennæ compressæ, art. 11<sup>mo</sup> brevi transverso, haud recepto. Prosternum postice productum. Pedes crassi, tarsi subtus longe setosis, posticis art. 1<sup>mo</sup> vix longiore.*

Ad sectionem *Asidites* pertinet; capite majore deflexo, clypeo antice vix truncato insignis.

1. *verrucosus*, ater, opacus, granulatus, thorace postice angustiore, truncato, impressione transversa basali notato, canaliculato, disco utrinque sinuatim profunde impresso, elytris thorace arcte applicatis eique sesqui-latioribus,

lateribus rotundatis, apice subito declivibus acutisque, tuberculis subacutis seriebus 9 dispositis, ad apicem obsolete. Long. .65—.9. In desertis fluminis Colorado: ♂ thorace majore, elytrisq. dorso convexioribus distinctus.

2. *lævis*, niger, subnitidus, parce subtiliter punctulatus, elytris punctis versus marginem submuricatis. Long. .65. Cum priore minus frequens: forma omnino præcedentis, at minor.

#### NOSODERMA Esch.

1. *diabolicum*, nigrum opacum, cataphractum, thorace latitudine longiore latius canaliculato, disco utrinque impresso partibus elevatis granulis minutis nitidis parce notatis, margine orenulato, elytris inæqualibus ante apicem subretusis, macula humerali, alteraque apicali sordide cinereis. Long. .6—.8. San Jose et San Diego, sub cortice quercuum.

#### ZOPHERUS Gray.

1. *tristis*,—niger parum nitidus, thorace latitudine paulo longiore, parce punctato, densius ad latera, lateribus ante medium subangulatis, postice crenulatis, elytris rugis dædaleis minus profundis notatis. Long. .55—.8. In deserta fluminis Colorado.\*

#### CONIONTIS Esch.

1. *affinis*, subcylindrica, postice subacuta, nigra niti-

\* Species altera in Nova Mexico a Dom. Fendler capta, characteribus sequentibus differt.

*Z. concolor*,—niger nitidus, thorace parce punctato, lateribus antice rotundato, postice magis angustato, crenulatoque, elytris rugis profundis notatis tubercula approximata formantibus apice bicallosis. Long. .6. Habitat ad Sta. Fe.

*Z. pectoralis*, niger, convexus, nitidus, ochraceo-marmoratus, thorace latitudine brevior, postice subito angustato, lateribus antice vix sinuatis, pone medium angulatis crenatisque, elytris ellipticis inæqualibus præsertim ad latera et apicem, angulo humerali haud porrecto; subtus ochraceo variegatus, pro-pectore granulis, minus elevatis scabro. Long. .9. Mexico: Dom. Guex: *Z. noduloso* similis thorace brevior: elytris convexioribus, pectoreque fere verrucoso, necnon colore minus variegato differt, abdominisque art. penultimo transversim elevato.



da, thorace minus subtiliter punctato, angulis anticis valde deflexis, lateribus tenuissime marginato, angulis basalibus acutis haud productis, elytris confertim rugoso-punctatis, pube brevissima flava parce vestitis. Long. .5. lat. .25. Benecia. A C. Escholtzii *Man.* thorace minus subtiliter punctato, margine tenuiore, disco antice convexiore punctisque elytrorum pubiferis differt.

2. *ovalis*, breviuscula, ovalis, postice subacuta, nigra nitida, thorace latitudine brevior minus subtiliter punctato, angulis anticis valde deflexis, lateribus tenuissime marginato, angulis posticis acutis productis, elytris confertim rugoso-punctatis. Long. .41. lat. .22. Oregon; præcedente brevior.

3. *puncticollis*, longiuscula, cylindrica, postice subacuta, nigra subnitida, thorace confertim subtiliter punctato, antice valde convexo, lateribus tenuissime marginato, angulis posticis rectis, elytris parce subtilius punctatis. Long. .35. lat. .15. Benecia.

4. *subpubescens*, elongato-ovalis, postice subacuta, atra nitida, pube flava depressa longiore vestita, thorace brevior, parum convexo minus subtiliter punctato, lateribus tenuissime marginato, angulis posticis acutis paulo productis, elytris minus subtiliter punctatis. Long. .37. lat. .17. San Jose, et San Diego, minus frequens.\*

EUSATTUS.

*Mentum trapezoideum, apice emarginatum. Antennæ longiusculæ. Tibiæ anticæ bicalcaratæ, angulo externo producto, thorace lateribus longe piloso.*

Corpus globosum, inflatum, prosterno postice prominulo, thorace lateribus longe piloso.

\* Adde.—C. *obesa*, brevis ovata, convexa postice acuta, nigra nitida, thorace brevior confertim minus subtiliter punctato, lateribus tenuiter marginato, angulis basalibus acutis paulo productis, elytris minus dense grossius punctatis, pilis brevissimis flavis parce vestitis. Long. .25. lat. .12. Habitat Territorio Missouriensi, circa 'Long's Peak' C. *ovalis* multo minor.

Genus *Pracoi* (Esch.) valde affine, mento tamen emarginato satis distinctum; insecta plura Boreali-Americana complectens, quorum *Zophosis reticulata* Say (J. Ac. 3, 250) sola descripta est.

1. *difficilis*, ventricosus, valde convexus, niger opacus, thorace parce subtilius punctato, lateribus marginato, angulis posticis acutis modice productis, elytris punctis magnis minus profundis submuricatis impressis, obsoleteque sulcatis, tibiis anticis usque ad apicem extus serratis. Long. .45. San Diego et Vallecitas, *E. reticulato* minor et multo convexior.

2. *muricatus*, globosus, postice subacutus, ater nitidus, capite confertim subtiliter granulato, thorace basi utrinque profunde sinuato, lateribus marginato, basi apiceque flavo-oiliato, disco subtiliter muricato, densius ad latera, elytris confertim acute muricatis, rugosisque, tibiis anticis ante apicem vix dilatatis, angulo externo longissime producta. Long. .45. Oregon.

3. *dilatatus*, globosus, postice subacutus ater, nitidus, capite minus dense granulato, thorace basi utrinque profunde sinuato, lateribus marginato, basi apiceque flavo-oiliato, disco lævissimo, lateribus subtiliter granulato, elytris granulis minus elevatis transversim confluentibus: tibiis anticis ante apicem valde dilatatis, posticis incurvis. Long. .45. In desertis arenosis fluminis Colorado.

4. *dubius*, ovalis, valde convexus, nigro-piceus nitidus, clypeo margine valde reflexo, thorace obsolete punctulato, lateribus marginato, angulis posticis acutis, modice productis, elytris parce subtiliter muricato-punctatis, tibiis anticis intus basi serrulatis; antennis rufis. Long. .3. Habitat ad flumina Colorado et Gila.\*

\* Adde. *E. convexus*, ventricosus, valde convexus, niger, subnitidus, thorace obsolete punctato, lateribus marginato, angulis posticis valde productis, elytris punctis quadratis minus profundis impressis, obsolete sulcatis, tibiis anticis basi serrulatis. Long. .35. Territorio Missouriensi, prope Long's Peak, *E. difficilis* valde affinis.

CÆLUS Esch.

1. *globosus*,—rotundatus, valde convexus, piceus nitidus, thorace brevior, antrorsum valde angustato, confertim punctato, elytris confertim subtiliter muricatis. Long. 27—35. San Diego. C. ciliato, Esch. multo latior, thoraceque antrorsum magis angustato, confertim punctato valde distinctus.

ELEODES Esch.

In hoc genere inscribendæ sunt omnes *Blaptæ* a Sayo (J. Ac. 3, 257, et seq.;) sc. *B. suturalis*, acuta, obscura (an hispilabris ej.?) obsoleta, carbonaria, extricata, opaca, et tricostata (= *Pimelia alternata* Kirby. F. B. 4, 232.) Genus habitu valde variabile, sed propter formarum transitiones, enucleari difficile. E thoracis forma, elytrorumque sculptura divisiones sequentes efformari possunt.

*A. thorace quadrato parum convexo, elytris sulcatis vel striatis punctis muricatis.*

1. *acuta*, = *Blaps acuta* Say. = *Eleodes sulcipennis* Man. Bull. mosc. 1843, 266; ej. Mag. Zool. Guér. 1843, pl. 128. Habitat in Territoriis Oregonensi et Missouriensi.

*B. thorace modice convexo, lateribus parum rotundato, elytris punctis viz muricatis.*

2. *vicina*,—nigra nitida, thorace subtiliter punctulato, latitudine haud longiore, lateribus modice rotundatis, postice subangustato, elytris discrete minus subtiliter seriatim punctatis punctis paucis interjectis, femoribus muticis. Long. 7. Habitat ad flumen Gila, E. quadricolli affinis, at

E nitidipennis, ventricosus, modice convexus, thorace opaco lateribus tenuiter marginato, obsoleteque punctato, angulis acutis modice productis, elytris parce punctatis nitidis, tibiis anticis serrulatis. Long. 4. Habitat Jalapa, Mexico, D. Haldeman.

elytris punctis majoribus magis discretis distinctius seriatis differt. Mas subcylindricus, elytris dorso convexis, postice attenuatis. Femina, elytris latioribus, dorso minus convexis, postice vix attenuatis.

3. *subnitens*,—longiuscula, antrosum regulariter angustata, nigra fere opaca, thorace latitudine longiore antice vix conspicue angustato, lateribus fere rectis, subtiliter parce punctato, elytris dorso minus convexis, subtiliter discreta seriatim punctatis, apice valde declivibus attenuatisque, femoribus anticis dente acuto armatis. Long. .7. Flumen Gila.

4. *longicollis*, elongata, sat convexa, nigra nitida, thorace obsolete parce punctulato, latitudine longiore, postice haud angustato, lateribus parum angustatis, elytris subtiliter parce punctulatis, punctis subseriatis, lateribus paulo rotundatis apice declivibus attenuatis. Long. .9—1.1. Flumen Gila. Mas paulo angustior, postice magis attenuatus. Variat punctis elytrorum majoribus, seriebus approximatis distinctis ordinatis.

*C. Thorace modice convexo, lateribus magis rotundatis, elytris punctis vix muricatis.*

5. *femorata*,—elongata leviter ovata, nigra nitida, thorace subtiliter minus dense punctato, lateribus rotundatis tenuissime marginatis, postice subangustato angulis posticis obtusis; elytris ovalibus convexis, apice attenuatis, punctis plus minusve distinctis seriatim positae paucisque interjectis; femoribus omnibus subtus breviter dentatis. Long. .7—1.0. San Diego; mas, elytris apice magis attenuatis.

6. *armata*, elongata, leviter ovata, nigra nitida, thorace subtiliter minus dense punctato, lateribus rotundatis tenuissime marginatis, postice subangustato, angulis posticis obtusis, elytris ovalibus, convexis, apice parum attenuatis punctis plus minusve distinctis seriatim positae, paucisque interjectis, femoribus omnibus subtus longe acuteque dentatis. Long.

·55—1·2. In desertis fluminis Colorado, frequens. Præcedente forma simillima, postice minus attenuata : mas angustior, postice acutus, tibiis posticis sinuatis.

7. *laticollis*,—elongata, nigra nitida, capite confertim, thorace subtilius minus dense granulato-punctatis, hoc lato, lateribus maxime rotundatis, subdepressis, postice angustato angulis posticis rectis, subprominulis, anticis acuminatis; elytris lateribus paulo rotundatis subtiliter seriatim punctatis, apice declivibus attenuatis, femoribus anticis dentatis. Long. 1·3. San Diego, minus frequens : mas, elytris thorace fere angustioribus, postice magis attenuatis tibiisque posticis subsinuatis differt.

8. *acuticauda*,—elongata, nigra nitida, capite thoraceque minus dense punctatis, hoc subtilius, lato, lateribus maxime rotundatis subdepressis, postice angustato, angulis posticis obtusis, subprominulis, elytris valde convexis, subtiliter seriatim punctatis, lateribus magis rotundatis, postice declivibus, valde attenuatis, productisque, femoribus anticis acute dentatis. Long. ·9—1·2. San Diego frequens : præcedenti affinis, elytris autem convexioribus, apice magis attenuatis et productis valde distincta. Mas angustior, elytris fere caudatis, tibiis posticis subsinuatis.

*D. Thorace valde rotundato, vel cordato, ab elytris subremoto, his confertim punctatis vel scabris, immarginatis.*

9. *consobrina*,—oblonga, nigra, thorace latitudine brevior, rotundato, apice emarginato, confertim punctato, lateribus granulato, margine reflexo, angulis posticis minutis, elytris confertim grosse punctatis lateribus et postice granulis reclinatis scabris, apice attenuatis, femoribus muticis. Long. ·65. Habitat ad montes circa Sta Isabel. Forma omnino *E. marginatæ* Esch., sed thorace angulis posticis distinctis, elytris punctis majoribus, granulis haud piliferis distincta.

*E. Thorace valde rotundato, ab elytris subrotundato, his planis confuso punctatis dorso valde marginatis.*

10. *depressa*, ovata, nigra, thorace latitudine brevior haud convexo, lateribus rotundatis, postice subangustato, sat dense grossius punctato, margine subreflexo, apice emarginato, elytris rotundato-ovatis, dorso haud convexis, sat dense punctatis, punctis subseriatis breviter piliferis, acute marginatis, apice declivibus, attenuatis, pedibus ferrugineis, antennarum articulis 3 ultimis crassioribus. Long. .37. In desertis Colorado, minus frequens.

#### AMPHIDORA Esch.

Genus præcedenti simillimum, et mento paulo transversum, apice haud angustato, solum differt. Clypeus apice ligulaque basi subcoriaceis, cum Helopiis affinitatem exhibet. Mares tarsis anterioribus dilatatis, subtus spongiosis, præditi sunt. Victus sub cortice, vel sub lapidibus.

1. *osculans*,—atra nitida oblonga, pilis longis fulvis dense vestita, thorace subtransverso, postice angustato confertim punctato, apice valde emarginato, lateribus valde rotundato, angulis posticis minutis rectis, elytris seriatis punctatis, interstitiis sat dense rugosis punctatisque, antennarum articulo 3<sup>o</sup> sequente duplo longiore. Long. .6. San Diego et Sta. Isabel. Mas tibiis posticis intus versus apicem dente acuto armatis.

2. *nigropilosa*,—nigra nitida oblonga, pilis longis nigris dense vestita, thorace confertim punctato, subrotundato, postice paulo angustato, apice emarginato, basi truncato, angulis vix prominulis, elytris punctis seriatis alterisque interstitialibus rugosis, versus latera punctis elevatis scabrosis, antennarum articulo 3<sup>o</sup> sequente fere duplo longiore. Long. .4. San Diego frequens. Mas tibiis anticis intus distinctus serrulatis.

3. *rufipes*, elongata, subcylindrica, nigro-picea, pilis

longis nigris dense vestita, thorace subquadrato, lateribus leviter rotundatis, angulis nullis, confluentur punctato, elytris elongatis thorace haud latioribus, punctis grossis minus profundis subseriatim positis substriatis, interstitiis parce punctatis, pedibus ferrugineis, antennarum articulo 3<sup>io</sup> sequente sesqui longiore. Long. .3. San Diego minus frequens.

4. *attenuata*, elongata, antice angustior, picea, (pilosa?) thorace cylindrico elongato, confertim punctato, lateribus vix rotundato, angulis nullis, elytris thorace paulo latioribus, humeris prominulis, tenuiter striato-punctatis, interstitiis subconfuse biseriatim punctatis. Long. .32. Specimen unicum mortuum ad Vallecitas inventum. Habitus fere præcedentis, et instrumenta cibaria accurate hujus generis.

Apocrypha Esch.

1. *dyschirioides*, nigra, nitida subtiliter griseo-pubescent, thorace subtransverso, globoso, sat dense punctato, elytris discrete punctatis, thorace haud latioribus, antennarum articulis intermediis breviusculis. Long. .11

San Francisco, ab *A. anthicoide* thorace majore haud confluentur punctato, antennisque minus gracilibus, necnon colore differt.

Cononotus.

*Antennæ crassiusculæ, articulo 2<sup>do</sup> vix brevior, 11<sup>mo</sup> longiore indistincte diviso, apice acuto. Mentum parvum, transversum quadratum. Palpi articulo ultimo longiore triangulari. Tarsi postici articulis duobus primis elongatis.*

Clypeo apice rotundato, oculisque rotundatis, sicut in *Apocrypha* gaudet, cui certe valde affine, habitu autem longiore minus convexo, thoraceque obconico, elongato haud globoso, notisque supra dicatis distinctum hoc genus

1. *sericans*, testaceus, subtiliter confertissime punctulatus, griseo-pubescent, thorace latitudine apicali sesqui

longiore, postice regulariter valde angustato, utrinque truncato, elytris elongato-ellipticis, parum convexis. Long. .13. San Jose et San Diego, sub lapidibus.

2. *punctatus*, testaceus, griseo-pubescent, thorace sat dense grossius punctato, latitudine apicali longiore, postice regulariter modice angustato, utrinque truncato, elytris elongato-ellipticis, modice convexis, punctis magnis postice obsoletis, seriatim positis. Long. .06. San Jose minus frequens.

#### AR.EOSCHIZUS.

*Tageniæ* simillimus, at mento majore, pedicello nullo; fissura buccalis angustissima, genis magis productis, palpis maxillaribus minus elongatis, antennarumque articulo ultimo minore.

1. *costipennis*, rufo-picea, opaca, brevissime flavo-setosa, oculis indistinctis inter cristas 2 laterales sitis, thorace capite multo angustiore elongato, subquadrato, elytris ellipticis thorace duplo latioribus, foveis seriatis cancellatis, costis 2<sup>nda</sup>, 4<sup>ta</sup>, 6<sup>ta</sup> marginalique magis elevatis; antennis crassissimis, perfoliatis. Long. .15.

Ad Vallecitas sub lapidibus.

#### NYCTOPORIS Esch.

1. *carinata*, nigro-picea, capite medio cristato, thoraceque varioloso, hoc brevior, versus latera utrinque vage foveato, elytris cristis interruptis tubercula seriata formantibus, 3 elevationibus integris. Long. .5. San Diego minus frequens.

#### EURYMETOPON Esch.

1. *abnorme*, alatum, elongatum, nigro-piceum punctatum, thorace subconvexo, latitudine duplo brevior, antice subangustato, angulis basalibus rectis, elytris punctis approximatis seriatis breviter piliferis, tibiis anticis triangulari-



bus. \*Long. 3. Habitat in desertis Colorado, sub cortice Prosopis, et sub lapidibus, frequens.

2. *convexicolle*, apterum, elongatum piceum, punctatum, thorace valde convexo, latitudine duplo brevior, antice valde angustato, angulis basalibus rectis, elytris punctis approximatis seriatis breviter piliferis, tibiis anticis triangularibus. Long. 3. Habitat cum priore, minus frequens.

3. *longulum*, apterum, elongatum subcylindricum, piceum nitidum, thorace lateribus confluentem, medio discrete punctato, subconvexo, transverso, antice subangustato, angulis posticis rectis, elytris tenuiter punctato-striatis, interstitiis subtiliter parce punctatis, tibiis anticis filiformibus. Long. 23. San Diego, minus frequens. Forma omnino *E. abnormis*.

4. *obesum*, subellipticum convexum, nigrum nitidum, thorace confertim punctato, transverso antrosum angustato, angulis posticis subobtusis, elytris punctis majoribus seriatis positae, interstitiis parce subtiliter punctatis, pedibus ferrugineis, tibiis anticis vix dilatatis. Long. 22. San Diego.

5. *atrum*, elongato-ellipticum convexum, nigrum, thorace confertim punctato, transverso, antice subangustato, angulis posticis subobtusis, elytris seriatis punctatis, interstitiis vel obsolete vel subtiliter parce punctulatis, pedibus ferrugineis, tibiis anticis vix dilatatis. Long. 2.

San Francisco, frequens. Spec. unicum ad San Diego lectum, punctis elytrorum interstitialibus majoribus seriatis differt; an species distincta?

#### AUCHMOBIUS.

*Clypeus productus, antice obliquus, apice emarginatus labrum obtegens; mandibulae obtusae; oculi transversae, haud superciliati; mentum magnum planum, subpentagonum, apice incisum, fissura buccalis nulla. Palpi et antennae de-*

*sunt. Tibiæ anticæ haud dilatatæ, apice truncatæ : coxæ posticæ approximatæ.*

Corpus longiusculum convexum, postice paulo latius, thorace elytris arcte conjunctis, Eurymetopis simile, a quibus olypeo mentoque apice incisio, oculisque haud superciliatis differt.

1. *s u b l æ v i s*, oblongus, longiusculus, convexus, ater, subnitidus, thorace subtiliter punctulato, latitudine plus duplo latiore, basi truncato, lateribus paulo rotundatis, elytris subtiliter punctatis pone basin paulo latioribus, versus apicem angustatis, valde declivibus, subtiliter minus dense muricatis. Long. .4. Specimen unicum mortuum ad Vallecitas inventum.

#### CRYPTADUS.

*Clypeus productus, antice truncatus, labro prominulo, integro. Palpi maxillares filiformes, oculi submarginati, superciliati ; mentum magnum transversum, fissura buccalis nulla ; antennæ 11-articulatæ, tenues, apice leviter incrassatæ, articulo. 3<sup>o</sup> longiore. Pedes debiles, bicalcaratæ, tibiæ anticæ apice extorsum productæ, coxæ posticæ valde approximatæ.*

Corpus rotundatum, obesum, thoracis margine leviter inflexo Praocidas referens, a quibus tamen olypeo haud emarginato, mento magno, oculisque superciliatis ; a Eurymetopis (habitu excepto) tibiis anticis apice productis, mentoque paulo majore solum differt.

1. *i n f l a t u s*, ater convexus, capite thoraceque aciculatis, hoc brevi, antrorsum angustato, lateribus rotundatis, tenuiter marginatis, elytris subtiliter muricato-punctatis, antennarum basi pedibusque rufis. Long. .23. Specimen unicum ; San Diego.

#### EDROTES.\*

*Clypeus trilobatus, lobo medii angusto, apice subemargi-*

\* Genus hocce sequentibus cum duobus familiam parvam inter Pimeliarum

*nato, lateralibus obtusis; mandibulæ supra dente forti armatæ: oculi rotundati; sterna arcte conjuncta; scutellum nulum.*

Corpus inflatum, thorace brevissimo, angulis porrectis, epipleuris maximis, coxis posticis modice distantibus. Hic ponenda est *Pimelia rotunda* Say. J. Ac. 3, 251.

1. *ventricosus*, niger nitidus, pilis longissimis albidis versus latera lanuginosus, capite thoraceque impunctatis, hoc versus latera rugis paucis elevatis notato, elytris parce subtiliter punctatis, punctis versus marginem muricatis, pedibus longe pilosis. Long. .41. Habitat in desertis Colorado.

#### TRICOROPHUS.

*Clypeus trilobatus, lobo intermedio angusto, apice rotundato, lateralibus rotundatis; mandibulæ supra dente obtuso armatæ; oculi rotundati, scutellum minutum.*

Corpus convexum, ovatum, gracile, thorace angustiore, convexo utrinque truncato: coxis posticis valde approximatis, epipleuris angustis.

1. *lævis*, niger, nitidus, capite thorace haud angustiore, fronte tuberculato parce punctato, plicis 2 utrinque supraocularibus, thorace punctato, elytris punctis maiusculis usque ad

clypei forma valde distinctam constitit, diagnosi sequente definitam: clypeus trilobatus, mentum magnum, fissura buccalis nulla; oculi superciliati; antennæ 11-articulatæ, tenues, articulo 3io longiore; articulo ultimo haud minore: pedes tenues tibiis filiformibus. Affines videntur *Epiphisa*, *Capnisa*, *Pterocoma*, *Priotheca*, et *Trachyderma*.

Adjungitur genus alterum. *TRIMYTIS*.

*Clypeus* lobo intermedio brevi truncato, lateralibus rotundatis, mentum apice incisum, mandibulæ haud dentatæ: oculi emarginati: scutellum minutum. Corpus ovale convexum, thorace lato elytris arcte conjunctum: epipleuris angustis, coxis posticis valde approximatis. Habitus omnino *Eurymetopi*.

*T. pruinosa*, ovalis convexa, atra nitida, capite thoraceque confertim punctatis, elytris subtilius minus dense punctatis, seriebus punctorum majorum ante apicem obsoletis. Long. .23.

Habitat in Territorio Missouriensi frequens, viva pruinosa.

medium 9-seriatis, interstitiis, apiceque impunctatis. Long. 32. Habitat in desertis Colorado; vivus pruinosus.

2. *rugiceps*, niger, vel piceus, nitidus, capite thorace paulo angustiore, fronte tuberculato, rugoso-punctato, plica solita supraoculari, thorace confertim punctato; elytris subtiliter parce punctulatis, seriebus novem punctorum maiorum versus apicem obsoletis. Long. 25.

San Jose, sub lapidibus sat frequens, femina elytris paulo minus convexis solum, differt.

3. *punctatus*, piceus, capite thorace angustiore aciculato, thorace breviusculo confertissime punctato rugosoque, elytris sat dense minus subtiliter punctatis, punctis vix seriatis. Long. 25. Vallecitas, specimen mortuum.

#### CRANIOTUS.

*Clypeus lobo intermedio lato, brevi, truncato, lateralibus acutis, mandibulæ haud dentatæ, oculi subtransversi. Corpus convexum, pubescens, gracile, thorace angustiore rotundato, epipleuris latis, immarginatis, coxis posticis parvis distantibus, utrinque ad intermedias propinquis.*

Habitus fere præcedentis, sed lobis clypei lateralibus acutis productis peculiaris, coxis posticis distantibus parvis, optime cum familia sequente (Scauris) quadrat, et transitionem facit.

1. *pubescens*, niger pube dense cinerea vestitus, capite thoraceque confertissime punctatis, hoc linea longitudinali lævi, elytris opacis, subtiliter punctulatis, lineis 3 vix distinctis minus pubescentibus. Long. 45.

Specimen unicum mortuum, Vallecitas.

#### CENTRIOPTERA Man.

1. *muricata*, nigra, subopaca, capite profunde parce punctato, utrinque impresso, thorace elytris haud latiore subcordato, sparsim punctulato, lateribus anguste reflexis punctatis, elytris pone medium latioribus, 9-seriatis, punctis ver-

**sus suturam impressis, extrorsum vero muricatis, reclinatis; femoribus posterioribus subtus spiculatis. Long. 55-95. Habitat in desertis Colorado. Cum figura C. caraboidis Man. (Guér. Mag. Zool. 1843) congruit, excepto mento solum unicarinato, elytrisque postice paulo dilatatis.**

CERENOPUS.

*Labrum omnino tectum, clypeus vix emarginatus, antennæ crassiusculæ, leviter incrassatæ, articulo 3<sup>io</sup> longiore, ultimo transverso acuminato, mentum parvum apice angustius, utrinque impressum, medio subcarinatum: tibiæ anticæ margine externo acuto, elytra basi marginata.*

Corpus elongatum; mares femoribus anticis incrassatis, posticis dentatis, tibiis anticis intus curvatis, denticulatis vel exasperatis.

1. **concolor**, ater nitidus, capite marginibus reflexis, transversim impresso vertice subelevato, thorace longiusculo, subcylindrico postice leviter angustato, lateribus subtiliter parce punctato, ante basin vage foveato, elytris pone medium leviter dilatatis, thorace sesqui latioribus, foveis seriebus positis octo margineque profunde impressis, tibiis anticis processu externo apicali brevi rotundato. Long. 75. Habitat in desertis Colorado. Mas tibiis anticis extus profunde sulcatis.

2. **bicolor**, ater nitidus, capite marginibus reflexis, transversim leviter impresso subtiliter punctato, thorace longiusculo, subcylindrico postice leviter angustato, subtilissime punctulato, ante basin vage foveato, elytris thorace haud latioribus elongatis, foveis maioribus seriatis impressis, pedibus læte rufis. Long. 4. Specimen unicum masculinum: Vallecitas.

3. **costipennis**, ater, opacus, depressiusculus, capite confertissime punctulato, lateribus minus reflexis, thorace planiusculo, postice subangustato, confertissime subtiliter aciculato, ante basin vage minus profunde foveato, elytris thorace

non latioribus, profunde 8-sulcatis, sulcis uniseriatim punctatis, interstitiis angustis, subacutis, pedibus saturate rufis. Long. .43. Ad flumen Gila.

EULABIS Esch.

1. pubescens, oblonga, minus convexa atra, thorace pedibusque obscure rufis, illo transverso, lateribus rotundato, confertissime aciculato-punctato, elytris late sulcatis, sulcis uniseriatim foveatis, punctisque minoribus utrinque seriatim positis, omnibus flavo-setigeris, interstitiis externis magis elevatis, acutis. Long. .35.

San Diego, frequens. Habitu fere *E. rufipedis*, paulo latior, et statura maiore, necnon corpore pubescente facile cognoscenda.

EPANTIUS.

*Labrum basi obtectum, clypeo antice late truncato; antennæ moniliformes leviter incrassatæ articulo 3<sup>o</sup> longiore, ultimo maiore, rotundato; mentum apice latius triangulare, medio tuberculo impresso notatum: elytra basi declivia, haud marginata.*

Sexus differentia latet, victus sub fucis ad littora maris.

1. obscurus, ater vix nitidus, oblongus, fere depressus; capite thoraceque confertissime punctatis, hoc subquadrato, lateribus rotundato, basi vix angustato, angulis posticis rectis, elytris thorace haud latioribus, apice rotundatis, subtiliter punctatis obsolete sulcatis, foveolis oblongis approximatis 8-seriatim positis, pedibus obscure rufis. Long. .3. San Diego, Junio, sat frequens.

NOTIBIUS.\*

*Oculi divisi: clypeus apice acute emarginatus: palpi*

\* Ut melius enodari possint genera sequentia, diagnosin familiæ *Opatrimorini* adiungo: *Clypeus* productus, antice vel emarginatus vel rotundatus, tibiae antice

*dilatati; antennæ moniliformes, extus crassiores, articulo 3<sup>o</sup> longiore; mentum latitudine longius, apice emarginatum, planum, tibiæ anticæ valde dilatatæ.*

Mares tibiis anticis supra medium intus angulatis gaudent: tarsis vix dilatatis.

1. *sulcatus*, oblongus convexus, niger, thorace subtransverso quadrato, lateribus vix rotundatis tenuiter marginatis, confertissime subtiliter punctato, elytris late profundeque sulcatis, interstitiis subtilissime parce punctulatis: pedibus rufis. Long. .22. San Diego.

2. *granulatus*, elongato-oblongus, modice convexus, niger, thorace quadrato, basi paulo angustato, lateribus antice modice rotundatis, tenuiter marginatis, confertissime granulato-punctato, elytris profundo striatis, striis punctatis, interstitiis elevatis, subtiliter parce muricatis: pedibus rufis. Long. .2. Vallecitas, et Colorado.

3. *puberulus*,—ellipticus, modico convexus, piceus subtiliter muricatus, pubescens, thorace latitudine duplo brevior, tenuiter marginato, lateribus rotundatis, angulis posticis acutis, elytris vix striatis: tibiis anticis valde dilatatis. Long. .2. Vallecitas.

4. *puncticollis*, ellipticus, modico convexus, pubescens piceus, capite thoraceque confertim punctatis, thorace latitudine duplo brevior, lateribus rotundatis, marginatis, angulis posticis vix acutis, elytris subtilissime parce muricatis, vix striatis, tibiis anticis valde dilatatis. Long. .2. Specimen unicum a San Jose.

#### CONIMUS.

*Oculi divisi, clypeus apice emarginatus: palpi dilatati,*

*compressæ; mentum parvum: coxæ posticæ approximatæ haud prominulæ, parapleuræ appendiculatæ: abdomen articulis haud emarginatis: tarsi subtus pubescentes.*

*antennæ crassæ, articulo 3<sup>io</sup> vix longiore: mentum minutum quadratum, apice vix latius; tibiæ anticæ modice dilatatæ: mares tarsis anterioribus paulo dilatatis.*

1. *seriatus*, oblongus, paulo convexus, nigro-piceus, nitidus, thorace latitudine brevior, lateribus modice rotundatis, confertim punctato, elytris seriatim punctatis, interstitiis minus dense punctulatis, pedibus rufis. Long. .15. San Jose.

2. *parallelus*, oblongus, paulo convexus, nigro-piceus nitidus, thorace latitudine brevior, lateribus vix rotundatis, parallelis, confertissime punctato, elytris seriatim punctatis interstitiis minus dense distinctius punctulatis, pedibus rufis. Long. .15. Vallecitas.

BLAPSTINUS. Sol. (Dej. ined.)

1. *sordidus*, ellipticus sordide-cinereus, pube densissima vestitus, thorace disco convexo, lateribus late depressis, basi bisinuato angulis posticis acutis, elytris obselete tessellatis, striis per paria paulo approximatis, interstitiis 3<sup>io</sup>, 5<sup>to</sup> 7<sup>mo</sup> que paulo magis elevatis. Long. .3. Specimen unicum, Colorado.\*

2. *crassus*, ellipticus, sat convexus, piceo-subæneus, fusco-pubescent, confertissime punctatus, thorace latitudine triplo brevior, antice paulo angustato, lateribus rotundato, basi vix bisinuato, elytris striis punctatis, interstitiis alternatim paulo elatioribus. Long. .25. San Diego minus frequens.

3. *dilatatus*,—ellipticus, depressus, ater, pube brevi depressa cinerea vestitus, thorace confertissime aciculato, punctatoque latitudine plus duplo brevior, antrorsum valde angustato, lateribus rotundato, basi subsinuato, angulis posticis obtusis; elytris striis profunde punctatis, interstitiis sat dense subtiliter punctatis. Long. .3.

Habitat ad flumen Colorado:—specimen unicum a San

\* Affinis videtur *Epilasio rotundato* Dej (Cajennis), at character genericus me fugit.



Diego, elytris subtilius fere obsolete punctatis differt: vix species distincta.

4. *brevicollis*, ellipticus paulo convexus, ater pube cinerea parce vestitus, thorace confertim aciculato, punctatoque, latitudine plus duplo brevior, antrorsum angustato, lateribus rotundato, basi bisinuato, angulis posticis fere rectis, elytris striis profunde punctatis, interstitiis subtilissime punctatis. Long. .24. San Francisco: præcedente minor, thorace minus depresso.

5. *pubescens*,—oblongus, convexus, ater, pube fusco-cinerea dense vestitus, thorace confertim punctato, latitudine sesqui brevior, antrorsum paulo angustato, lateribus antice rotundatis, basi truncato, elytris striis profunde punctatis, interstitiis subtilissime punctulatis. Long. .25. Colorado, et Vallecitas.

6. *sulcatus*, oblongus, paulo convexus, ater, opacus, sordide pubescens, thorace confertissime punctato, latitudine sesqui brevior, antrorsum angustato, lateribus rotundato, basi bisinuato, elytris punctis quadratis approximatis fere sulcatis, interstitiis parce punctulatis. Long. .21. Vallecitas.

7. *longulus*, elongato-oblongus, parallelus, ater nitidus pube cinerea parce vestitus, thorace punctato latitudine paulo brevior, antrorsum haud angustato, lateribus rotundato, basi vix sinuato, elytris striis valde punctatis, interstitiis parce punctatis, pedibus rufis. Long. .23. Specimen unicum ad Gilam.

8. *angustus*, elongatus, depressus, piceus, pube cinerea dense vestitus, thorace sæpius rufescente, vix transverso subrotundato, utrinque truncato, punctato, elytris parallelis striis punctatis, interstitiis planis parce punctatis pedibus rufis. Long. .24. In desertis Colorado, minus frequens.

ANEPSIUS.

• *Oculi vix divisi, clypeus apice haud emarginatus, anten-*

*nae graciles extus incrassatae, articulo 3<sup>io</sup> longiore; mentum trapezoideum, apice latius, palpi tenues, haud dilatati: tibiae anticae valde dilatatae extus crenulatae: corpus apterum.*

1. *delicatus*,—elongato-oblongus, paulo convexus, piceus nitidus, thorace confertim aciculato, transverso, lateribus rotundato, apice emarginato, basi truncato, angulis posticis valde obtusis: elytris punctis oblongis approximatis confertim seriatis, brevissime pubescentibus; antennis pedibusque rufis. Long. .17. Vallecitas et Colorado.

#### BATULIUS.

*Oculi haud divisi, clypeus apice haud emarginatus, antennae breves, extus incrassatae, articulo 3<sup>io</sup> haud longiore: mentum trapezoideum apice latius; palpi tenues haud dilatati; tibiae anticae valde dilatatae, extus subdentatae. Corpus apterum.*

1. *setosus*, rufo-pallidus, oblongus, convexus, nitidus parce pilosus; thorace latitudine plus duplo brevior, muricato-punctato, densius ad latera, lateribus valde rotundatis, apice emarginato basi truncato, angulis obtusis; elytris punctis minus approximatis, sub-seriatim positis. Long. .14. Vallecitas et Gila.

2. *rotundicollis*, rufus, elongato-oblongus, convexus, nitidus, thorace latitudine plus duplo brevior, minus dense grossius punctato, lateribus valde rotundatis, basi angustiore truncato, angulis posticis nullis; elytris punctis magnis minus approximatis sub-seriatim positis; versus marginem vero subtiliter striatis. Long. .1. Vallecitas et Gila.

#### PHALERIA Lat.

1. *rotundata*, elliptica, latiuscula, convexa, pallida, occipite subtiliter punctato, thorace brevi antrorsum subangustato, striola utrinque basali notato; elytris tenuiter striatis,

striis postice profundioribus. Long. .23. San Diego; variat elytrorum dorso infuscato.

PLATYDEMA Lap.

1. *a n g u s t u m*, elongatum, depressum, nigro-piceum, subnitidum, thorace latitudine plus sesqui brevior, confertim punctato, antrorsum subangustato, lateribus rotundato, tenue marginato, basi subsinuato, elytris striis tenuibus punctatis profunde impresso, interstitiis confertim punctulatis; subtus rufo-piceum. Long. .2. Colorado, minus frequens.

ADELINA Dej.

1. *p l a n a*,—testacea nitida depressa, clypeo vix impresso, punctato elytris subtiliter punctulatis, tenuiter striatis, accurate planis, margine ad striam 7<sup>mam</sup> abrupte declivo. Long. .12. Colorado, sat frequens. Mas clypeo supra antennas utrinque producto, cornu breve formante.

ULOMA Meg.

1. *m a r g i n a t a*,—elongato-oblonga, fere depressa, piceo-rufa nitida, clypeo impresso, thorace subtiliter punctulato punctis paucis grossis intermixtis, margine minus tenui reflexo, elytris striis punctatis, interstitiis parce punctulatis, margine minus tenui reflexo, tibiis anticis teretibus haud spinosis. Long. .27. Colorado, sat frequens; clypeus quam in speciebus alteris mihi notis longior, impressione apici minus approximata. Mas cornu utrinque antrorsum spectante tereti supra oculos armatus.

TENEBRIO Lin.

1. *e s t r i a t u s*,—elongatus piceus nitidus, confertim punctatus, thorace latitudine haud brevior convexo, lateribus antice rotundato, tenuiter marginato, basi truncato, angulis posticis rectis prominulis, elytris thorace non latoribus

marginatis; pedibus rufo-piceis. Long. .27. Specimen unicum ad San Jose; antennæ articulis 8-11 paulo latioribus, haud transversis.

#### CÆLOCNEMIS Man.

1. *magna*,—nigra vix nitida, thorace latitudine sesqui brevior subcordatō, subtiliter confertim punctato convexo, lateribus rotundatis, postice angustato, basi truncato, angulis rectis, elytris subtiliter punctulatis, punctis majoribus in seriebus 8 margineque positis, postice obsoletis. Long. 1.2. San Jose. Mas, tibiis posticis infra medium intus longius, densissime flavo-pubescentibus.

2. *obesa*,—latior, nigra nitida, thorace latitudine duplo brevior, subhexagono, subtiliter parcius punctato, convexo, lateribus valde dilatatis, fere angulatis, basi truncato angulis obtusis; elytris obsolete parce punctulatis, punctis majoribus in seriebus 8 margineque positis, postice non obsoletis. Long. 1.1. Specimina duo ad Sta Isabel.

#### ANÆDUS Dej.

1. *rotundicollis*,—piceus nitidus, punctis magnis confertis impressus, breviter cinereo-pubescent, thorace latitudine sesqui brevior, lateribus rotundatis, basi truncato, angulis prominulis, elytris thorace paulo latioribus. Long. .15. Specimen unicum ad flumen Gila. Ab Anædo brunneo (*Pandarus brunneus* Ziegl. Pr. Ac. Nat. Sc. 2, 45) thorace minus transverso distinctus.

#### STENOCHIA Kirby.

1. *gracilis*, elongata atra opaca, capite thoraceque confertissime granulato-punctatis, hoc quadrato, latitudine vix brevior, antrorsum vix angustato, elytris striis profundis punctatis, interstitiis convexis, femoribus læte rufis, apice nigris, antennis corpore vix brevioribus. Long. .3. Specimen unicum ad San Diego lectum.

HELOPS Fabr.

1. *rugulosus*, nigro-æneus, capite thoraceque confertissime punctatis, hoc transverso subquadrato, tenuiter marginato, antrorsum subangustato, angulis nullis prominulis, elytris tenuiter distincte striatis, interstitiis planissimis, subtiliter punctulatis, transversimque rugosis. Long. 35—5. San Francisco in folia: pedes anteriores dilatati subtus spongiosi sunt.

MELANDRYADÆ.

EUSTROPHUS Ill.

1. *indistinctus*, oblongo-ellipticus convexus, subtilissime punctulatus, niger nitidus, densius breviter pubescens, elytris postice subangustatis tenuiter punctato-striatis, antennarum basi apice pedibusque rufis. Long. 25. Colorado, minus frequens. E u. b i c o l o r i simillimus, punctura subtiliore, punctisque elytrorum seriatis multo minoribus sat distinctus.

LAGRIARIÆ.

PEDILUS Fisch.

1. *punctulatus*, ater breviter cinereo-pubescens, thorace subtransverso, rotundato convexo, læte rufo, parce punctulato, elytris confertissime subtilius punctatis rugosisque. Long. 26. San Francisco. Variat elytris testaceo rufis:— variat quoque pedibus posticis basi rufis. Sexus differentia sicut in speciebus indigenis, in plaga elytrorum apicali lævis-sima pallida.

ANTHICIDÆ.

EURYGENIUS Ferté.

1. *constrictus*, elongatus, ater pube dense cinerea vestitus, pilisque longis erectis intermixtis, thorace campanulato, latitudine plus sesqui longiore, apice subito constricto,



elytris confertim grossius punctatis, maculis densius pubescentibus adpersis. Long. 4. San Diego, minus frequens.

*Eu. murino* (*Ichthydion murinum* Hald. Pr. Ac. Nat. Sc. 1, 304) simillimus, at pilis erectis longis sparsis, thoraceque longiore vix canaliculato mox distinctus.

#### *Notoxus* Geoff.

1. *cavicornis*, minus elongatus fuscus nitidus cinereo-pubescent, thorace subtransverso, elytris vix angustiore cornu valde elongato, apice concavo, basi subito elevato, parte elevata cornu ipso non angustiore, elytris testaceo-pallidis, subtiliter punctulatis sutura, maculis 1 vel 2 linearibus ante medium, fasciaque obliqua angulata pone medium infuscatis, pedibus pallidis. Long. 1. San Francisco, frequens: variat maculis plus minusve distinctis. Mas, elytris apice acutioribus extus oblique truncatis.

2. *conformis*, elongatus testaceo-fuscus, cinereo-pubescent, thorace globoso, haud transverso, cornu elongato, apice concavo, basi paulo elevato, cristo cornu ipso vix angustiore, marginato, elytris testaceo-pallidis, minus dense punctulatis, maculis utrinque 2 ante medium, fasciaque postica obliqua angulata nigris, pedibus pallidis. Long. 13. Specimen unicum ad Gila inventum.

#### FORMICILLA.

*Thorax non cornutus: tarsi elongati, filiformes, articulo penultimo non emarginato: femora modice clavata; corpus alatum.*

Habitus et summa affinitas Anthicorum quorundam (*A. cinctus* Say &c.), tarsi autem filiformibus valde distinctus.

1. *munda*, rufo-testacea, nitidissima, thorace elongato, postice angustato, ante basin lateribus sinuato, basi 3-punc-

**toto**, elytris pilis paucis erectis, nigris, basi fascia angusta pone medium, apiceque rufo-testaceis, antice parce punctatis, pone humeros late impressis. Long. .09. Colorado sub quicquiliis ad fluminis marginem.

**ANTHICUS Payk.**

1. **tenuis**,—elongatus, niger nitidus, tenuiter cinereo-pubescent, capite subtiliter punctulato, thorace latitudine sesqui longiore, lateribus bisinuato, postice valde angustato, elytris pone basin impressis, fascia albida angustata ad quadrantem, antennis pedibusque testaceis. Long. .08. Colorado, frequens: *A. cincto* (Say) similis, at thorace longiore, magis sinuato differt.

2. **nitidulus**,—elongatus niger nitidus, parce pubescens, thorace latitudine sesqui longiore, convexo, lateribus antice valde rotundato, ad medium valde angustato, basi cylindrico, marginato, elytris subtiliter punctulatis, pone basin impressis, ibique cinerascens: antennis basi testaceis. Long. .1. San Jose.

3. **annectens**, elongatus niger nitidus, subtiliter griseo-pubescent, capite thoraceque parce vix conspicue punctatis, hoc latitudine longiore, cordato, lateribus antice rotundato, pone medium angustato, ante basin paulo constricto basi cylindrico, elytris basi fere truncatis, minus subtiliter punctatis postice vix punctatis, antennarum basi tibiisque testaceis. Long. .1. San Diego: specimen unicum ad littus: forma omnino *A. californici* (Fertè), at thorace capiteque multo subtilius punctatis distinctus.

4. **confinis**, elongatus, niger nitidus, vix pubescens, capite postice vix rotundato, fronte parce punctato, thorace modice convexo elongato-ovato, postice angustato, parce punctato, basi marginato; elytris thorace duplo latioribus, minus subtiliter punctatis, omoplatis prominulis. Long. .1. Specimen unicum: San Diego, ad littus.

5. *nigritulus*, elongatus, niger nitidus, longius cinereo-pubescent, capite parce punctato, postice vix rotundato, thorace elongato ovato, paulo convexo, postice subangustato, sat dense punctato, basi marginato, elytris thorace sesqui latioribus, minus subtiliter punctatis, omoplatis prominulis. Long. .08. San Francisco, in locis humidis.

6. *luteolus*, elongatus flavo testaceus, cinereo-pubescent, capite postice rotundato, prominulo, dense punctato, spatio verticali lævi, thorace confertim punctato longiusculo, ovato, convexo, postice angustato, basi truncato, marginato, elytris confertim minus subtiliter punctatis, convexis, basi truncatis, omoplatis paulo prominulis. Long. .12. Specimen unicum: Vallecitas.

7. *corticalis*, fusco-piceus, subnitidus, longius cinereo-pubescent, capite thoraceque impunctatis, illo postice truncato, hoc latitudine paulo longiore, modice convexo, postice vix angustato, basi truncato marginatoque, elytris thorace duplo latioribus, pone medium paulo dilatatis, convexis antice grosse punctatis, basi truncatis, omoplatis prominulis, pedibus rufis. Long. .11. Frequens ad Colorado, sub arborum cortice.

8. *horridus*,—elongatus, testaceus, pilis erectis albidis hispidus, capite grosse punctato, linea longitudinali lævi, basi vix truncato, thorace ovato, subcampanulato, latitudine longiore, confertim grosse punctato, basi angustato, elytris elongato-ellipticis convexis, grosse punctatis nitidis, punctis versus apicem paulo minoribus, fascia obscura pone medium ornatis. Long. .11. Specimen unicum ad flumen Gila.

9. *cribratus*, elongatus, nitidus, flavo-testaceus, longius cinereo-pubescent, capite postice rotundato, confertim punctato, thorace longiusculo, subconvexo, subcampanulato, basi vix angustato marginato, confertim punctato; elytris basi truncatis, grosse punctatis, punctis ad apicem minoribus,



*fascia angusta nigra pone medium notatis.* Long. 11. Specimen unicum; Sta Isabel.

10. *rufulus*, elongatus, saturate rufus, nitidus cinereo-pubescent, pilisque erectis hispidus, capite minus dense punctato, medio lævi, basi truncato, thorace longiusculo, ovato punctato, minus convexo, basi subangustato marginatoque; elytris elongatis, paulo convexis thorace sesqui latioribus, minus subtiliter punctatis, basi subtruncatis, omoplatis haud prominulis. Long. 1. Specimen unicum, San Diego.

11. *biguttulus*, valde elongatus, niger subnitidus, tenuiter cinereo-pubescent, capite confertim punctato, basi fere truncato, thorace longiusculo, ovato minus convexo, confertissime punctato, postice angustato, basi valde marginato; elytris thorace latioribus, sat dense punctatis, macula utrinque pone medium rufo-testacea. Long. 15. Specimen unicum ad San Francisco.

12. *punctulatus*, elongatus, niger nitidus, cinereo-pubescent, capite thoraceque confertim punctatis, illo linea longitudinali lævi, basi fere truncato, hoc longiusculo, minus convexo, confertim punctato, ovato, basi subangustato marginatoque, elytris minus convexis grossius sat dense punctatis, basi vix truncatis, omoplatis haud prominulis. Long. 1. San Jose et San Diego.

13. *alutaceus*, elongatus minus convexus, niger subtilissime alutaceus, vix pubescent, capite punctato, postice fere truncato, thorace ovato, punctato, postice angustato truncato marginatoque, elytris vix punctatis apice latius rotundatis abdomine brevioribus. Long. 1. San Diego et Gila.

14. *obscurus*, longiusculus, fuscus, cinereo-pubescent, capite punctato, basi truncato, linea longitudinali tenui lævi, thorace longiusculo, ovato, sat convexo, confertim punctato, basi paulo angustato, submarginato, elytris convexis, ellipticis, thorace latioribus, sat dense punctatis, pone me-

dium obscurioribus. Long. .08. San Jose, frequens sub quisquiliis.

15. *bellulus*,—rufo-testaceus, cinereo-pubescens, capite postice truncato, confertim punctato, callo verticali vix conspicuo; thorace longiusculo, ovato, confertim punctato, paulo convexo, postice angustato, elytris thorace duplo latioribus, confertim minus subtiliter punctatis, basi truncatis, fascia nigra, lata ad medium ornatis. Long. .07. San Diego, ad maris oras.

16. *nanus*,—longiusculus, testaceus, cinereo-pubescens, capite postice truncato, grossius punctato, linea longitudinali lævi, thorace ovato, sat dense punctato, paulo convexo, postice paulo angustato, elytris thorace sesqui latioribus, basi valde truncatis, minus convexis, confertim punctatis, versus medium obsolete infuscatis. Long. .07. San Diego.

17. *maritimus*,—pallidus, cinereo-pubescens, capite thoraceque confertissime subtiliter punctulatis, illo basi truncato, linea longitudinali lævi, hoc ovato, latitudine longiore, convexo postice paulo angustato, elytris murinis, ellipticis, convexis, confertim punctatis thorace plus sesqui latioribus, apice pallidis, abdomine obscuro. Long. .09. San Diego ad maris oras.

#### TANARTHUS.

*Antennæ filiformes, articulo 2<sup>do</sup> paulo brevior, 11<sup>mo</sup> elongato, intermediis fere turbinatis: oculi parvi laterales. Palpi mediocres, paulo dilatati. Tibiæ longius bicalcaratæ. Tarsi filiformes, articulo penultimo haud bilobo. Corpus alatum elongatum depressum, capite magno, basi emarginato, elytris thorace paulo latioribus, apice fere truncatis, abdomine paulo brevioribus.*

Habitus fere Dromii, et Anthicorum reliquorum speciebus magis depressus.

1. *salinus*, rufo testaceus, tenuiter cinereo-pubescens,

subtiliter punctulatus, capite quadrato, plano, basi subemarginato canaliculatoque, thorace ovato-quadrato, postice leviter angustato, basi marginato, coleopteris thorace paulo latioribus, latitudine duplo longioribus, utrinque truncatis. Long. .21. Habitat ad lacum salinum desertorum Colorado, more *Bembidiorum* volitans.

### MORDELLONÆ.

#### ANASPIS Geof.

1. *luteipennis*,—nigra subparallela, cinereo-pubescent, transversim subtiliter rugosa, thorace latitudine sesqui brevior, angulis posticis rectis, lateribus paulo rotundatis, elytris flavo-testaceis, antennarum basi, pedibusque plus minusve testaceis. Long. .12. San Francisco. *A. flavipennis* Hald. (*J. Ac. N. S.* 1,100) simillima at thorace minus abbreviato, lateribus minus rotundatis.

2. *collaris*,—nigra fere linearis, cinereo-pubescent, transversim subtiliter rugosa, thorace rufo, convexiusculo, latitudine vix brevior, capite paulo latiore, lateribus minus rotundatis, angulis posticis rectis; pedibus anticis basi, ore, antennarumque basi testaceis. Long. .1. S. Diego; specimen unicum.

3. *atra*,—atra, fere linearis, cinereo-pubescent, subtilissime transversim rugosa, thorace capite sesqui latiore, latitudine brevior, lateribus rotundatis, angulis posticis rectis, elytris distinctius rugosis, antennarum basi pedibusque plus minusve testaceis. Long. .1. San Francisco.

### OEDEMERIDÆ

#### DITYLUS Fisch.

1. *quadr collaris*,—ater subtilissime pubescens, thorace capite latiore, paulo transverso, quadrato, subtiliter confertim punctato, utrinque suboblique late impresso, medio

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utris thorace plus sesqui latioribus, coriaceo-rugosis,  
4 obsoletis elevatis. Long. .64. Oregon. A. D. caru-  
Hald. thorace quadrato valde distinctus.\*

ASCLERA Schmidt.

1. *excavata*, atra, subtiliter pubescens, thorace nitido,  
subtiliter parce punctato, subcordato, disco utrinque valde  
excavato, basique valde impresso, elytris scabris, lineis eleva-  
tis duabus obsoletis. Long. .3. San Diego.

2. *bicolor*,—fusca, pubescens picea, capite thoraceque  
subtiliter punctatis, hoc longiusculó, ovato postice an-  
gustato, disco utrinque, et ante basin late impresso, elytris  
subtiliter rugose punctatis, lineis vix distinctis, pedibus rufis.  
Long. .25. Oregon.

MELOIDES.

CYSTEODEMUS.†

*Antennæ filiformes, articulis arcte connexis, 3<sup>o</sup> haud lon-  
giore; tarsi filiformes, unguiculis dente basali armatis:  
elytra amplissima, connata.*

Generi *Meloi* proximus, at elytris amplissimis, non  
imbricatis valde distinctus.

1. *armatus*, obscure olivaceo-aeneus, thorace utrin-

\* Illustratione causa adiungo:—*Calopus* Fabr.

1. *angustus*, valde elongatus, fusco-testaceus, subtiliter cinereo-pubescenti  
confertissime punctatus, thorace cylindrico, latitudine longiore, capite haud latiore,  
canaliculato, apice, basi, et utrinque ad latera vage impresso, elytris dilutionibus,  
lineis tribus vix distinctis: antennis serratis. Long. .7. Specimen unicum ad  
Sta Fe, (Novæ Mexico) a Dom. Fendler lectum.

† Species altera a Dom. Wislizeni benevole data;

6. *Wislizeni*, supra splendide cyaneus, nitidus, capite thoraceque parce  
punctatis, hoc pentagono, canaliculato, angulis lateralibus acutis, elytris valde  
ventricosus, sphericis, apice acutius divergentibus, apice summa rotundatis; foveis  
minoribus valde profundis cancellatis. Long. .65, lat. .5. Habitat in Nova Mexico.

que spina acuta armato, elytris ventricosus, basi angustatis, dorso antice late impressis, apice latius divergentibus, apice summa rotundata, opacis, foveis magnis cancellatis. Long. 4—65. lat. 25—4. Habitat ad flumen Colorado, præcipue in *Larrea mexicana* ramos.

TEGRODERA.

*Antennæ breviusculæ, filiformes, articulis arcte connexis, 3<sup>io</sup> haud longiore, oculi transversis, reniformes; tarsi filiformes, unguiculis dente magno basali armatis; elytra ampla, lateraliter valde declivia elongata: corpus alatum.*

A *Cantharide* differt elytris haud granosis, denteque unguiculari unguiculo haud æquali: antennarum art. 1<sup>mo</sup> apice concavo, excavatoque peculiare hoc genus est.

1. *erosa*, nigra supra glabra, capite læte rufo, lateribus fusco parce punctato, sulco profundissimo utrinque, alteroque a fronte ad verticem exarato; thorace nigro, inæquali, subpentagono, elytris reticulatis flavis, fascia ad medium, margine pone medium, apiceque nigris; antennis, ore, pedibusque nigris; tibiis omnibus rectis. Long. 8—11. San Diego, Julio.

CANTHARIS Geoff.

In speciebus omnibus subtus descriptis unguiculi fissi sunt, partibus æqualibus: tibiæ intermediæ curvæ, trochanterisque postici non armati.

§ 1. *Tibiæ posticæ calcaribus latis, obtusis.*

1. *vulnerata*,—nigra nitida, capito basi subemarginato, pone medium rufo, macula occipitali nigra; thorace parce punctato, pentagonali, angulis lateralibus acutis rufis; elytris subtiliter confertissime rugosis. Long. 4—10. San Diego; Septembre, frequens.

§ 1. *Tibiæ posticæ calcari uno lato, obtuso, altero tenui.*

2. *nitidicollis*, nigra, supra luteo-flava, capite thoraceque parce punctatis nitidissimis, hoc longiusculo, antrorsum angustato, vage impresso, elytris elongatis, confertim rugosis, lineis 3 indistinctis; scutello ore antennis pedibusque nigris. Long. .65. San Diego, Junio.

3. *tenebrosa*,—atra opaca, minus elongata, capite punctato, gutta parva verticali rufa, thorace punctato, quadrato postice subangustato, elytris subtilissime rugosis. Long. .6—8. San Diego minus frequens.

4. *æneipennis*, nigro-ænea, capite thoraceque rufis, minus dense punctatis, nigro-pubescentibus, illo antice nigro, hoc transverso, sub-quadrato, basi angustato, canaliculato, vageque impresso; elytris olivaceo-æneis confertissime minus subtiliter rugosis, pube obsoleta grisea parce vestitis. Long. .26—4. Sta Isabel, Maio. Calcare tibiarum posticarum minus dilatato, altero solum paulo crassiore optime cum § 3 transitionem facit.

§ 3. *Tibiæ posticæ calcaribus æqualibus acutis.*

5. *cyanipennis*, cyanea, capite thoraceque splendide viridi-aureis, parce punctatis illo puncto verticali cuprascente, basi vix emarginato, brevissime canaliculato; hoc subpentagono, transverso, profunde canaliculato, utrinque foveato; elytris confertissime rugosis, lineis vix distinctis. Long. .55. Oregon.

6. *chalybea*, obscure cyanescens, capite thoraceque punctis parcis notatis, canaliculatis, hoc convexo, subcampanulato, ad apicem profunde impresso, disco utrinque foveato, elytris confertissime rugosis. Long. .42. Oregon.

7. *samaragdula*, nigra plus minusve ænescens, capite thoraceque minus dense punctatis, illo puncto verticali testaceo; hoc antrorsum angustato, lateribus antice rotundatis,

utrinque late foveato; elytris confertissime rugosis; antennis corporis fere longitudinis. Long. .37. Ad montes circa Sta Isabel.

8. *stygica*,—atra, opaca, capite nitidiusculo, basi canaliculato parce punctato, gutta verticali testacea, thorace quadrato, canaliculato, parce punctato, versus apicem vage impresso, elytris confertim rugosis. Long. .55. Oregon. *C. tenebrosam* refert, at elytris minus subtiliter rugosis, antennisque longioribus minus incrassatis sat distincta.

9. *lugens*,—elongata, atra, opaca, parce nigro-pubescentis, capite punctato, canaliculato, basi submarginato, thorace elongato, antrorsum angustato, minus dense punctato, vage impresso, elytris confertissime rugosis. Long. .42—.5. San Diego, frequens. *Epicauta puncticollis*, et alias valde refert, sed antennis hujus generis, articulis minus arcte conjunctis, 3<sup>io</sup> haud longiore, et elytris rugosis, haud punctatis distincta.

*EPICAUTA* Redt. . (Dej. ined.)

Genus *Cantharidi* simillimum, et antennis extus haud incrassatis, articulis cylindricis haud rotundatis solum distinctum. Habitu paulo differt corpore densius pubescente, thoraceque non impresso nec lateribus angulato.

§ 1. *Antennæ filiformes, articulis (versus apicem) arcte conjunctis, 3<sup>io</sup> quam 4<sup>ta</sup> longiore.*

\* Unguiculi parte inferiore paulo breviores.

1. *elegans*,—atra, cinereo-pubescentis, capite thoraceque punctatis, illo puncto verticali rufo, thorace latitudine fere longiore, capite vix angustiore, elytris thorace duplo latioribus, confertim rugose punctatis, nigris vitta magna fulva a humero fere ad apicem extensa, medio angustiore, macula parva laterali nigra pone medium includente. Long. .45. San Diego; rarissime.

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\*\* Unguiculi partibus aequalibus.

2. **puncticollis**,—elongata, nigra, nigro-pubescent, capite thoraceque confertim punctatis, canaliculatis, hoc latitudine longiore, antrorsum angustato, elytris confertissime granulato-punctatis antennarum articulis intermediis crassitie duplo longioribus. Long. 45. San Diego et San Francisco. Man. Bull. Mosc. 1843. 288.

3. **oblita**,—elongata nigra, nigro-pubescent, capite thoraceque minus crebre punctatis, hoc subtiliter canaliculato, latitudine longiore antrorsum angustato, elytris confertissime granulato-punctatis, antennarum articulis intermediis crassitie vix sesqui longioribus. Long. 4. Habitat in Oregon et ad San Francisco: præcedenti simillima, at thorace minus confertim punctato, antennarumque articulis minus elongatis differt.

§ 2. *Antennæ setaceæ articulo 3<sup>o</sup> 4<sup>o</sup> longiore.*

4. **maura**,—elongata nigra, nigro-pubescent, capite minus dense punctato, thorace parcius subtilius punctato, subtilissime canaliculato, latitudine longiore, lateribus parallelis, antice rotundatis; elytris confertissime granulato-punctatis. Long. 4. Habitat ad San Francisco.

HISTRINI.

HOLEPTA Payk.

1. **cacti**, fronte utrinque striola obliqua, thorace lateribus antice rotundatis, parce punctatis, margine medio interrupto, elytris stria interna integra, lateribus postice parce punctatis; tibiis posticis dentibus 3 aequaliter distantibus, mandibulis capite longioribus, mento utrinque carinato. Long. 58. San Diego in cactis putridis. Mas, thorace ad angulos anticos fovea maxima excavato; variat stria externa fere integra.



2. *vicina*, fronte utrinque stria horizontali curvata, thorace lateribus antice rotundatis, parce punctatis, margine integro, elytris stria interna integra, externa postice in lineam punctorum fracta, tibiis posticis dentibus 3, intermedio apicali propiore; mandibulis capite longioribus, mento concavo. Long. 33. San Diego, cum priore minus frequens.

3. *populnea*, valde depressa, fronte subtiliter punctulato, utrinque striola vix conspicua notato, thorace lateribus antice rotundatis, postice vix angulatis, obsolete parce punctatis, margine integro, elytris stria interna late interrupta, externa brevi, basali; pygidio utrinque punctis paucis notato, mandibulis capite brevioribus, mento concavo. Long. 28. Habitat ad flumen Colorado, sub cortice *Populi*; mas linea thoracis marginali antice profundiore; variat thorace elytrisq; parce punctulatis.

HISTER Lin.

1. *sexstriatus*, oblongus, niger nitidus, thorace bistriato, stria externa margini approximata, interna subsinuata, elytris striis externis tribus marginalique integris, reliquis oblitteratis, vel solum punctis apicalibus notatis, epipleuris excavatis punctatis, tibiis anticis 4-dentatis, posterioribus spinis majoribus sub-4-dentatis. Long. 23—35. San Francisco, minus frequens.

2. *corticalis*, ovalis depressus, niger nitidus, fronte marginata, minus subito deflexa, thorace vix punctulato, punctis 4 vel 5 utrinque impressis, stria marginali nulla, elytris parce punctulatis, striis punctatis, duabus primis abbreviatis, marginali nulla, epipleuris bistriatis, tibiis anticis bidentatis. Long. 07. Ad Colorado minus frequens.\*

\* Ad divisionem eandem pertinet:

*H. venustus*—ovalis, latior, depressus, cyaneus, nitidus, capite punctato, fronte excavato, thorace linea marginali obsoleta, parce punctato, medio laevi, angulis anticis impressis, elytris ad apicem parce punctatis striis punctulatis, duabus

## EPIERUS Er.

1. *decipiens*, ovalis, depressus niger nitidus, thorace confertissime punctulato, elytris punctulatis striis integris, suturali antice obsoleta, marginali nulla, epipleuris bistriatis, tibiis anticis crenulatis. Long. .1. Ad Colorado, sub cortice *Populi* frequens. *Platysoma* apparet, at tibiis edentatis, fronte subito deflexa prolongataque, et mandibulis retractis, ad hoc genus revera pertinet.

2. *vicinus*, elliptico-ovalis, modice convexus, confertim punctulatus, fortius in thorace, elytris striis profundis punctulatis, marginali exteriore integra, epipleuris bisulcatis, pygidio toto punctato, segmento secundo parcius. Long. .1. Ad Colorado frequens. *E. nigrello* paulo angustior, et pygidio minus parce, segmento ultimo evidenter punctato præcipue distinctus.

## PAROMALUS Er.

1. *Opuntiae*, oblongus, subdepressus, thorace confertim punctulato ad latera parcepunctato, elytris ad apicem punctatis, striis profundis fortiter punctatis, duabus primis obsoletis punctorum compositis, marginali nulla, vel brevissima, laterali superiore exarata. Long. .11. San Diego, in *Opuntii* putridis. A sequentibus stria laterali excavata distinctus.

2. *consors*, oblongus, postice subangustatus subdepressus, thorace confertim subtilissime punctulato, lateribus latius parce punctato, elytris pone medium parce punctatis, striis parce punctatis, stria prima abbreviata, secunda interrupta, marginalibus duabus tenuibus, exteriore brevissima. Long. .10. Cum priore.

3. *Gilensis*, oblongus, postice subangustatus, thorace subtiliter punctulato, lateribus parce punctato, elytris ad primis antice obsoletis, epipleuris tristriatis, tibiis anticis 4-dentatis. Long. .11. Habitat in provinciis australibus sub cortice arborum rarissime: a Dom. Zimmerman, amice datus. *Platysoma venustum* Dej. Cat.

apicem punctatis, striis parce punctatis duabus primis abbreviatis, marginali nulla. Long. .10. Ad flumen Gila, in *Cereis giganteis* putridis.

PACHYLOPUS Er.

1. *sulcifrons*, oblongus ater, capite marginato, lineaque antice concava insculpto, thorace margine basali confertim punctato, elytris confertissime punctatis, plaga parva scutellari, basi anguste, humeris et apice externa lævibus, striis quatuor dorsalibus abbreviatis, obliquis suturali integra, cum dorsali coniuncta, tibiis anticis fortiter bidentatis, supra longe spinoso-serratis. Long. .25. Habitat ad San Diego, ad oceani littora. *Saprinus sulcifrons* Man. Bull. Mosc. 1843, 259. Cum genere *Pachylopo* (Er. Klng. Jahrb. 196) omnino quadrat: differentia tamen sexus in *P.* dispere anomala, in speciebus nostris abest.

2. *serrulatus*, oblongus ater, thorace basi lateribusque postice anguste punctatis, elytris confertim punctatis, humeris plagaque apicali externa lævibus, striis dorsalibus ad medium abbreviatis, suturali integra cum dorsali coniuncta, tibiis anticis spinoso-serratis. Long. .15. Cum priore minus frequens: caput lineis similiter insculptum est. Variat elytris castaneis.

3. *gaudens*, oblongus, ater, ænescens, nitidus, capite marginato, lineaque utrinque antica obliqua notato, thorace basi punctis marginato, elytris pone medium parce punctatis, lateribus omnino lævibus, stria marginali brevissima, dorsalibus ad medium abbreviatis, suturali integra cum dorsali coniuncta, tibiis anticis tridentatis, dente apicali bifido. Long. .14. Cum prioribus specimen unicum.\*

\* Ad hoc genus quoque pertinet *Saprinus dimidiatipennis* Lec. — *Heter palmatus* Say: qui tamen ab aliis supra descriptis tibiis apice longius calcaratis differt; spinæ quoque externæ rariores sunt, et potius in series quatuor confusæ ordinari habeantur.

## SAPRINUS Leach.

Species subtus descriptæ omnes epipleuris bistriatis gaudent. Secundum prosterni formam, striarumque dispositionem manipulos plures efformavi.

A. *Caput antice vix marginatum.*a. *Prosternum convexum striis nullis.*

1. *interstitialis*, oblongo-elongatus, æneus, thorace lateribus late punctatis, disco punctulato, elytris striis parallelis, pone medium abbreviatis, 2<sup>nda</sup> dorsali duplicata, interstitiis plagaque apicali communi transversa punctatis, tibiis anticis 5-dentatis. Long. .13. San Francisco, rarissime, in fimeto.

b. *Prosternum convexum striis parallelis.*

2. *obscurus*, ovalis, ater, nitidus, thorace punctato, densius ad latera, elytris parce punctulatis, pone medium punctatis, striis externis longioribus, marginali distincta, prosterno punctato, tibiis anticis 6-denticulatis. Long. .22. San Francisco, rarissime.

3. *pectoralis*, ovalis ater, nitidus, thorace lateribus dense punctato, disco punctulato, elytris parce punctulatis, pone medium punctatis, striis externis longioribus, marginali nulla, prosterno punctato, striis approximatis, tibiis anticis 6-denticulatis. Long. .2. San Diego, minus frequens.

4. *pæminosus*, ovalis ater, nitidus thorace lateribus punctato, disco punctulato, elytris parce punctulatis, pone medium punctatis, striis externis longioribus, marginali nulla, prosterno vix punctulato, striis remotis, tibiis anticis 6-denticulatis. Long. .13. San Francisco, variat stria marginali brevissima.

5. *interceptus*, oblongo-ovalis, ater, nitidus, thorace minus dense punctato, elytris punctatis, versus basin punctulatis, striis inequalibus, externis longioribus, suturali brevis-

simā, basali, cum dorsali interna coniuncta, tibiis anticis sub-6-dentatis. Long. 11. Specimen unicum. San Diego.

*c. Prosternum compressum læve, striis antice vix divergentibus.*

6. *discoidalis*, latus, nigro-æneus, nitidus, capite tenuiter marginato, thorace impresso lateribus valde punctatis, disco postice lævi, elytris striis impunctatis, externa elongata, flexuosa, marginali brevi, interstitiis spatioque postico ad suturam fere extensa opacis, cum lateribus parce punctatis, 3<sup>o</sup> usque ad medium nitido, tibiis anticis sub-4-dentatis. Long. 18—3. Vallecitas, in cadaveribus; optime ad divisionem, B. spectat hæc species.

7. *alienus*, latus, nigro-æneus, nitidus, capite tenuiter marginato, thorace impresso, lateribus valde punctatis, elytris striis æqualibus, dimidiatis, disco rotundato, ad apicem extenso, humeris, maculaque ad interstitium 3<sup>ium</sup> nitidis, lævissimis, reliquis opacis, punctatis, tibiis anticis 6-denticulatis.

*d. Prosternum convexum striis divergentibus, medio approximatis.*

8. *lugens* Er. = *californicus* Man. Bull. Mosc. 1843, 259. Habitat in Territorio Missouriensi, ad Sta Fe, Novi Mexico, et in California ubique.

9. *Oregonensis*, latus, nigro-æneus, nitidus, capite tenuiter marginato, subtiliter punctato, thorace subimpresso, plaga laterali angusta punctata, elytris aciculato-punctatis, minus dense versus basin, spatio magno communi lateribusque lævibus, striis æqualibus, punctulatis, dimidiatis, marginali distincta, tibiis anticis fortius 5-serratis. Long. 2. San Francisco, San Diego, et Nova Mexico. Variat stria suturali antice obsoleta, vel abbreviata. Lec. Bost. Journ. 5, 75.

*e. Prosternum convexum, utrinque ad apicem forcatum striis remotis divergentibus.*

10. *insertus*, ovalis, convexus, atro-æneus, thorace confertim subtilius punctato, elytris punctulatis, pone mediam



punctatis, striis externis longioribus, marginali distincta, tibiis anticis crenatis. Long. .15. San Francisco.

11. *obductus*, ovalis, convexus, atro-æneus, thorace confertim subtilius punctato, elytris punctulatis, pone medium aciculatis, striis subæqualibus paulo pone medium abbreviatis, marginali distincta, tibiis anticis crenatis. Long. .17. California borealis.

12. *ciliatus*, latus, æneus, thorace confertissime punctato, disco postice punctulato, margine longe ciliato, elytris aciculatis, disco parvo scutellari parce punctulato, striis internis longioribus, pone medium extensis, marginali distincta, suturali antice obsoleta, tibiis anticis valde serratis. Long. .10. Colorado; striis prosterni quam in præcedenti minus distantibus.

13. *vinctus*, rotundatus, ater, nitidus, sat dense punctatus, elytris striis subæqualibus, suturali integra, marginali longiuscula, punctis versus basin paulo subtilioribus; tibiis anticis subserratis. Long. .10. Specimen unicum, San Diego.

14. *laridus*, rotundatus, ater, nitidus, thorace parce punctato, elytris parce punctatis, subtilius versus basin, striis fere parallelis, punctatis, dimidiatis, marginali distincta, tibiis anticis crenulatis. Long. .07—.10. San Diego, in fimeto. Variat stria suturali antice obsoleta.

15. *scissus*, rotundatus, ater nitidus, thorace parce punctulato, elytris pone medium parce punctatis, antice vix punctulatis, striis obliquis dimidiatis impunctatis, 1<sup>ma</sup> brevior, suturali antice abbreviata, marginali distincta, tibiis anticis crenulatis. Long. .07. San Diego, in fucis putridis.

f. *Prosternum compresso-carinatum, striis divergentibus.*

16. *vestitus*, rotundatus, ater, opacus, confertim punctatus, elytris striis æqualibus, pone medium abbreviatis, marginali indistincta, tibiis anticis valde serratis. Long. .10. Specimen unicum, San Jose.

17. *fimbriatus*, latus, æneus, nitidus, thorace margine longe ciliato, lateribus punctato disco lævi, elytris striis æqualibus paulo pone medium abbreviatis, punctatis, area scutellari magna lævi, tibiis anticis valde serratis. Long. 11.—15. California, ubique; variat (mas?) thorace antice subimpresso; variat sæpe elytris castaneis.

17. *plenus*, latus, æneus, nitidus, thorace lateribus punctato, disco lævi, elytris striis æqualibus dimidiatis, marginali longiore, aciculatis, area scutellari magna lævi, humeris parce punctatis, tibiis anticis serratis. Long. 13. Colorado: præcedenti simillimus, et punctis elytrorum densioribus, aciculatis, prosterno magis punctato, thoracis lateribus brevius, parcius ciliatis solum distinctus.

19. *vitiosus*, latus æneus, nitidus, thorace lateribus punctatis, elytris aciculatis, area scutellari magna, apiceque lævibus, lateribus parce punctatis, striis æqualibus, 2<sup>nda</sup> a sutura deficiente: tibiis anticis serratis. Long. 11. Colorado, minus frequens.

20. *lubricus* latus, æneus, nitidus, thorace lateribus punctato, elytris striis æqualibus dimidiatis, confertissime aciculatis, area scutellari ad striam internam extendente, apiceque latiore lævibus, humeris parce punctatis, tibiis subtilius serratis. Long. 14. San Francisco et San Diego, frequentissimus.

21. *cærulescens* latus, cyanescens, confertim punctatus, subtilius versus thoracis, et elytrorum basin, elytris striis externis longioribus, tibiis anticis serratis, antennarum clava maxima. Long. 15. Specimen unicum. San Diego, in cadavere.

B. *Caput antice marginatum*: (striis prosterni fere conniventibus.)

22. *bigemineus* rotundatus, æneus, elytris confertissime aciculatis, area triangulari versus thoracis basin, altera scu-

tellari parva humerisque lævibus nitidis, striis fere obsoletis, externa longa, flexuosa, tibiis anticis 4-dentatis. Long. .10. San Diego.

23. *lucidulus*, oblongus, piceus nitidus, thorace punctato, parcius in medio, elytris striis æqualibus, longiusculis, marginali longiore, area postica fere ad marginem extendente punctata: tibiis anticis 5-dentatis. Long. .13. San Francisco, specimen unicum. *S. patrulem* refert, at thorace punctato distinctus.

#### ABRÆUS Leach.

1. *maritimus*, oblongus, minus convexus, niger, thorace parce punctato, basi immarginato, elytris minus dense punctatis, stria obliqua dimidiata notatis, pygidio impunctato. Long. .04. San Diego, in fucis putridis. In hoc genere maximus.

2. *basalis*, oblongus, subdepressus, piceus, parce subtiliter punctatus, thorace basi striolato, medio marginato, elytris striola nulla dorsali impressis, laterali tenui, humeris lateribusque lævibus, pygidio parce punctulato. Long. .02. Ad flumina Colorado et Gila, sub cortice.

#### CICINDELIDÆ.

##### *CICINDELA* Lin.

1. *gravidā*, obscure æneo-brunnea, subtns viridi-ænea, albo-pubescent, labro albo vix 3-dentato, fronte parce punctato, thorace quadrato, postice subangustato, impressionibus transversis valde profundis, vix canaliculato, elytris thorace duplo latioribus, postice paulo dilatatis, lunula humerali postice rectangulariter flexa, fascia medii rectangulariter flexa, ad dodrantem descendente, cum margine albo coniuncta, lun-



ulaque apicali supra breviter oblique adscendente, albis, margine summo æneo, apice oblique attenuatis subtilissime serratis. Long. .53. San Diego, ad oceani littora. Mas *C. albohirtæ* simillimus, et thorace postice subangustato, vix canaliculato differt. Femina thorace latiore, elytris ad medium subito dilatatis, margine explanato.

2. *imperfecta*, elongata supra nigra, rugosa subtus viridi ænea, fronte subtiliter striata, labro albo dente medii prominulo, lateralibus obsoletis, thorace quadrato, postice subangustato, lateribus fere rectis, impressionibus transversis profundis, subtiliter canaliculato, elytris thorace duplo latioribus, cuprascentibus parce punctatis, postice vix latioribus, lunula obliqua humerali vix curvata, striga ad medium obliqua subsinuata fere ad apicem descendente, marginem non attigente, lunulaque apicali supra breviter oblique adscendente tenuibus albis; apice non serratis. Long. .45. California borealis. *C. cinctipenni* Lec. affinis thorace autem postice minus angustato, elytris non albomarginatis differt.

3. *tenuisignata*, elongata, supra brunneo-ænescens, rugoso-granulata labro albo vix dentato, fronte utrinque subtiliter striata, thorace cylindrico, postice subangustato, impressionibus distinctis, elytris thorace duplo latioribus, confertim punctatis, lunula humerali curvata obliqua, striga media oblique sinuata ad dodrantem descendente, cum margine albo coniuncta, lunulaque apicali breviter oblique adscendente, tenuibus albis, apice suboblique attenuatis serratis; subtus viridi-ænea, albo-pubescent. Long. .43. Ad flumen Novum, in desertis fluminis Colorado. Mas elytris cylindricis; Femina elytris ad medium paulo dilatatis.

4. *hemorrhagica*, nigro-cyanea, labro albo, medio unidentato, fronte utrinque subtiliter striata, thorace quadrato, lateribus rectis, impressionibus transversis profundis, elytris punctis minus densis ad apicem obsoletis, macula humerali, altera submarginali, fascia media obtuse refracta,

macula marginali pone medium lunulaque subapicali oblique ascendente clavata albis, apice serrulata; subtus parce alba-pilosa abdomine læte rufo. Long. 45—55. San Diego ad oceani littora, Junio. Variat maculis plus minusve oblitteratis.

5. *sigmoidea*, supra obscure ænea, capite thoraceque subtiliter evidenter rugosis, fronte utrinque striata, thorace lateribus subrotundatis, postice leviter angustato, impressionibus transversis profundis, elytris thorace duplo latioribus, antice subangustatis, confertissime viridi-punctatis, lunula humerali intus subito flexa, fascia media longius tortuosa cum linea marginali postice dilatata coniuncta, lunulaque apicali oblique intus breviter ascendente subhamata albis, subtus viridi-ænea, albo-pubescens. Long. 47. San Diego, ad portus ripas arenosas. Forma et summa affinitas *C. tortuosæ*. \*

6. *latesignata*, supra atra, subtus viridi-ænea valde pilosa, labro tridentato albo, fronte striata, punctata albopilosa, thorace rugoso lateribus subrotundatis, postice subangustato, impressionibus transversis profundis, elytris convexiusculis, confertim punctatis, margine interrupta, lunula humerali oblique producta, fascia intermedia refracta, lunulaque apicali intus ascendente latis albis, apice late æqualiter rotundatis, subserratis; sutura lævi, latius incrassata. Long.

\**C. tortuosa*, supra obscure ænea, capite thoraceque subtilissime rugosis, thorace postice subangustato, impressionibus transversis profundis, elytris thorace duplo latioribus, antice vix angustatis, minus dense viridipunctatis, lunula humerali intus subito flexa, fascia media longius tortuosa cum linea marginali postice dilatata coniuncta, lunulaque apicali oblique intus breviter ascendente subhamata, albis tenuissimis sæpius interruptis. Long. 50. Georgia et Louisiana, in oryzaceis. Dej. Sp. Gen. 1, 87.

*C. ascendens*, supra ænea, capite thoraceque subtilius evidenter rugosis, thorace postice non angustato, lateribus paulo rotundatis, impressionibus transversis profundis, elytris thorace vix duplo latioribus antice vix angustatis, minus dense viridi-punctatis, lunula humerali intus subito flexa, fascia media longius valde tortuosa, cum linea marginali postice dilatata coniuncta, lunulaque apicali oblique

·5. San Diego, in pratis salinis, et ad oceani littora. Variat maculis latissimis confluentibus, ita ut elytra alba videntur, macula elongata, triangulari, postice dilatata, atra relictæ. Habitus et summa affinitas *C. generosæ*, punctis autem profundioribus elytris ad apicem latius rotundatis, suturaque latius incrassata differt.

CARABIDÆ.

EGA Lap.

1. *lætula*, læte rufo-testacea, nitida, thorace parvo convexo, postice angustato, elytris pone basin transversim impressis, dein infuscatis, striis profundis integris, 6<sup>to</sup> abbreviata, interstitiis parce punctulatis setosisque; maculis ante medium fasciatim positæ, alteraque maiore pone medium argenteis notatis, antennarum articulis 4 ultimis nigris. Long. ·15. Ad flumina Colorado et Gila, Martio, in locis humidis frequentissima.

DIAPHORUS Dej.

1. *tenuicollis*, saturate testaceus pubescens, capite thoraceque parce punctulato, hoc elongato, postice valde angustato, basi cylindrico, elytris striis impunctatis interstitiis

intus longe ascendente, fere cum fascia coniuncta. Long. ·42. Specimen unicum a Georgia, ad maris oras.

*C. serpens*, supra ænea, capite thoraceque subtilius evidenter rugosis, thorace postice vix angustato, lateribus minus rotundatis, impressionibus transversis profundis, elytris thorace duplo latioribus, antice subangustatis, minus densè vidipunctatis maculis sicut in prioribus, fascia vero brevius tortuosa, lunulaque apicali brevius ascendente valde hamata. Long. ·45. Ad maris oras: Key West, Florida. Dom. Jones.

*C. cumatilis*, læte cyaneo-purpurea labro vix dentato, fronte utrinque profunde striata, thorace convexo postice non angustato, impressionibus transversis profundis, elytris thorace fere duplo latioribus, confertim minus profunde punctatis punctis 3 submarginalibus, alteris utrinque duobus posticis, minutissimis, lunulaque apicali albidis, abdomine testacea. Long. ·4. Louisiana. Dom. Guex. *C. rufiventri* affinis multo minor.

vix convexis, obsolete punctulatis, 3<sup>io</sup> indistincte multi-punctato, setis paucis marginalibus instructis. Long. 21. Specimen unicum. San Jose.

#### ENAPHORUS.

*Caput basi constrictum, collo crasso thoraci coniunctum; mentum medio non dentatum: ligula valde elongata, angustata: palpi labiales cylindrici, maxillares dilatati: antennæ articulo 1<sup>mo</sup> sequentes 3 æquante, reliquis subæqualibus latitudine longioribus, leviter compressis; tarsi art. 4<sup>to</sup> simplici, postici art. 1<sup>mo</sup> elongato, unguiculis simplicibus.*

*Diaphoro* similis, at habitu depresso, thoracis angulis posticis prominulis, et antennis tarsisque posticis aliter constructis differt.

1. *rufulus*, rufo-testaceus, depressus, pubescens, capite thoraceque confertim punctatis, hoc elongato, canaliculato, postice angustato, basi truncato, angulis extantibus, elytris striatis interstitiis planis, confertim punctatis. Long. 22. Ad San Jose, in locis humidis, sub lapidibus. Variat macula communi suturali pone medium infuscata.\*

#### AXINOPALPUS Lec.†

Propter species subtus descriptas, diagnosim ampliorem ut melius distinguatur hoc genus, adiungo.

\* Adde genus novum *THALPIUS*.

Caput basi constrictum, collo crasso thoraci coniunctum; mentum medio edentatum; palpi labiales cylindrici, maxillares dilatati; antennæ articulo 1<sup>mo</sup> sequentes 3 æquante, reliquis æqualibus rotundatis, tarsi articulo 4<sup>to</sup> simplici, postici art. 1<sup>mo</sup> elongato, unguiculis simplicibus.

Optime *Helluones* cum *Dryptinis* coniungit hoc genus; habitu fere *Helluomorphæ*, articulo vero antennarum 1<sup>mo</sup> longo mentoque edentato, *Diaphoro* similis, a quo tamen tarsis posticis minus elongatis, antennisque moniliatis differt. Species unica, *T. pygmaeus* = *Helluo pygmaeus*. Dej. Sp. 2, 460. In provinciis australibus rarissime. D. Schaum.

† Genus novum adiungo. *APENES*.

Mentum dente magno obtuso: ligula apice rotundata paraglossis latissimis

*Mentum medio acute dentatum: palpi maxillares elongati (labialibus triplo longiores) tenues, articulo ultimo longiore fere acuto, labiales articulo ultimo longiore crasso, dilatato, obconico: thorax postice angustatus, basi pedunculatus; tarsi filiformes, tenues postici valde elongati, articulis 1—4 longitudine decrescentibus, unguiculis pectinatis (A. biplagiatus) vel simplicibus (A. fusciceps.)*

1. *californicus* = *Dromius californicus* Motsch. Bull. Mosc. 1845, 336. tab. 5, fig. 1. A. biplagiato similimus, differt tamen pectore, epipleurisque nigris, femoribus fuscis, unguiculisque non pectinatis.

2. *fusciceps*, pallidus capite supra obscuro, thorace latitudine vix brevior postice angustato, angulis posticis obtusis distinctis, elytris indistincte striatis bipunctatis. Long.

11. San Jose, sub quisquiliis frequens.

? *PHILOTECNUS* Sch.

Genus defectu librorum mihi non satis compertum, et caractere imperfecto (Chenu Enc. Hist. Nat. Coleopt. 74.) solum cognitum; genere Cymindi vel potius Glyciæ proximus et unguiculis simplicibus tantum differe videtur. Species duo hic descriptæ, tarsorum articulo 4<sup>to</sup> emarginato,

non brevior; palpi labiales articulo ultimo longiore dilatato, maxillares labialibus longiores tenues, articulo ultimo precedente duplo longiore, apice truncato thorax postice pedunculatus; tarsi articulo 4<sup>to</sup> leviter emarginato, unguiculis pectinatis. Ab Axinopalpo differt palpis maxillaribus minus elongatis, apice non acutis, labialibus minus incrassatis, articulo penultimo longiore, mento longius dentato, tarsisque articulo 4<sup>to</sup> non filiformi. Corpus punctatum non pilosum. Hic ponendæ sunt. C. lucidula Dej., C. sinuata Say, et species novæ.

A. opaca. Nigra, capite thoraceque nitidis parce punctulatis, hoc transverso, postice angustato, angulis basalibus obtusissimis, basi medio valde producto, elytris opacis striis subtiliter punctulatis, interstitiis planis, 3<sup>io</sup> bipunctato, humeris rufescentibus: antennis pedibusque testaceis. Long. 31. Specimen unicum in Georgia inventum.

palpis labialibus articulo ultimo valde dilatato, præcedente non longiore gaudent.

1. *nigricollis*, nitidus capite confertim, thorace parce punctato, nigro-æneis, hoc cordato, postice valde angustato, angulis posticis prominulis, elytris viridi-æneis thorace duplo latioribus, striis vix punctulatis, interstitiis planis parce punctulatis, brevissime pubescentibus, antennis palpis pedibusque nigris. Long. .32. San Jose, minus frequens.

2. *ruficollis*, niger nitidus, capite subtiliter punctato, thoraceque læte rufis, hoc cordato, postice valde angustato angulis posticis prominulis, apice basique punctato, disco fere lævi, elytris viridi-æneis thorace duplo latioribus, striis punctulatis, interstitiis vix convexis, parce punctulatis, brevissime pubescentibus, palpis ferrugineis. Long. .32. Specimen unicum, San Diego.

#### APRISTUS Chaud.

*Mentum medio vix dentatum; palpi articulo ultimo ovali, apice compresso, fere acuto, maxillares labialibus vix longiores, art. ultimo longiore: thorace postice angustatus, basi non pedunculatus, truncatus, vel paulo rotundatus, filiformes, postici elongati, articulis 1—4 gradatim brevioribus, unguiculis simplicibus.*

Huc ponendi sunt; *A. cordicollis* Chaud. Bull. Mose. 1850, 66. (*Dromius cordicollis* Lec. An. Lyc. 4.): *Dromius subsulcatus* Dej. Sp. 2, 451. *Dr. latens* Lec. An. Lyc. 4, 191.

1. *laticollis*, nigro-subæneus, thorace latitudine brevior, postice valde angustato, lateribus vix sinuato, angulis posticis obtusis, basi utrinque leviter obliqua, elytris subtiliter reticulatis, minus profunde sulcatis, interstitiis vix convexis, parce subtiliter punctulatis, 3<sup>io</sup> bipunctato. Long. .15. San Diego. *D. subsulcato* similis; thorace brevior, elytris minus profunde sulcatis differt.

BOMIUS. ( $\beta\mu\mu\sigma\varsigma$  = basis.)

*Mentum medio vix dentatum; palpi articulo ultimo ovali, apice compresso, acuto, maxillares labialibus vix longiores, art. ultimo longiore; thorax postice angustatus, basi pedunculatus; tarsi tenues, filiformes, postici elongati articulis 1—4 gradatim brevioribus, unguiculis vel simplicibus, vel vix dentatis (B. lucido).*

In hoc genus inscribendi *Dromius americanus* Dej. Sp. 5—361 et *B. linearis* (*Dromius angustus* Lec. An. Lyc. 4—191) et *Dromius nigrinus* Man. Bull. Mosc. 1843. Forté cum *Blethro* coniungendum hoc genus, at mentum medio bidentatum meminit Motschoulsky. (Bull. Mosc.)

1. *lucidus*,—elongatus niger nitidus, thorace latitudine non longiore, postice valde angustato, latitudine basali apicali sesqui minore, angulis posticis vix distinctis, elytris abdomine paulo brevioribus, striis fere nullis, bipunctatis, unguiculis simplicissimis. Long. .10. Colorado. *B. lineari* minor thorace postice magis angustato, elytrisque minus abbreviatis.

# CYMBIDIS Latr.

Species nostrates in divisiones duas naturales inscribi possunt.

A. Corpore piloso; ♂ tarsorum anticorum art. 1—3 dilatatis; palpis labialibus vel dilatatis (*C. pilosa*) vel cylindricis (*C. reflexa*).

Huc pertinent *C. laticollis* Say, *cribricollis* Dej., *venator* Dej., *americana* Dej., *pilosa* Say, *elegans* Lec., *neglecta* Hald., et *reflexa* Lec. (Agass. Lac. Sup. 203).

B. Corpore glabro; ♂ articulis tarsorum anticorum 1—4 dilatatis; palpis omnibus cylindricis. *C. limbata* Dej.,

*C. fuscata* Dej., *platycollis* Lec. (*Lebia platycollis* Say.) cum sequente.

1. *punctigera*, depressa, picea, subnitida, capite parce punctato, thorace latitudine brevior, postice angustato, margine latius reflexo, disco punctato, apice basique punctato, angulis, posticis obtusis, non rotundatis, elytris striis punctulatis, interstitiis parce punctulatis, fere planis. Long. .4. Ad flumina Colorado et Gila.

LEBIA Latr.

1. *guttula*, pallida, nitida, capite postice utrinque obsolete striato, thorace canaliculato subtilissime rugoso, latitudine fere triplo brevior, antice angustato, lateribus valde rotundatis, margine depresso reflexo, angulis posticis rectis, basi paulo prolongata: elytris bipunctatis, sutura macula rhomboidea pone medium communi, altera marginali, apiceque nigro-piceis, abdomine nigro. Long. .15. Specimen unicum ad Colorado.

2. *rufo-collis*, nigra, capite vix subtiliter punctulato, thorace rufo canaliculato, rugoso, obsoleteque punctato, latitudine triplo brevior, antrosum minus angustato, ad apicem rotundato, margine late depresso, angulis posticis rectis, basi modice prolongata; elytris læte cyaneis tenuissime striatis, bipunctatis, interstitiis planis, parce obsolete punctulatis. Long. .23. San Diego: in *Artemisiæ* folia.

PLATYNUS Bon. Lec.

1. *variolatus*, subdepressus, nigro-æneus, thorace transverso, rotundato, subtiliter canaliculato, angulis posticis nullis, basi utrinque minus profunde impresso, elytris thorace duplo latioribus, basi emarginatis, apice non sinuatis tenuiter striatis, interstitiis planis, tertio 5-foveato, fusco æneis, margine lato pallido: antennarum basi pedibusque pallidis, palpis nigris. Long. .25. San Francisco.



CHLÆNIUS Bon.

1. *regularis*, obscure cyaneus, dense fusco-pubescent, thorace latitudine haud brevior quadrato, antice posticeque paulo angustato, lateribus paulo rotundatis minus dense punctato, basi utrinque leviter impresso, linea longitudinali subtili; elytris thorace duplo latioribus, ellipticis, basi truncatis, subtilissime striato-punctatis, interstitiis subtiliter punctulatis, antennis palpis pedibusque ferrugineis. Long. .65. Ad flumina Colorado et Gila; *C. rufipede* et *laticollem* refert, at thoracis forma distinctus.

2. *cumatilis*,—elongatus, læte cyaneo-purpureus, vix conspicue pubescens, occipite profunde parce punctato, thorace cordato, latitudine haud brevior, postice angustato angulis posticis rectis, parce grosse punctato, basi utrinque longius impresso, elytris thorace fere duplo latioribus, striis obsolete punctatis, interstitiis vix parce punctulatis, antennis palpis, pedibusque ferrugineis. Long. .6. San Diego, et Sta Isabel. Variat fronte viridescente.

3. *apicalis*, elongatus cyaneo-viridis, dense ferrugineo-pubescent, capite profundè punctato, fronte lævi, thorace convexo, cordato, postice angustato, angulis rectis, grossius minus dense punctato, basi vix impresso, elytris thorace fere duplo latioribus striis subtilibus, antice punctatis, macula magna apicali læte rufa; antennis palpis pedibusque ferrugineis. Long. .45. Ad fluminis Colorado ripas.

4. *obscurus*,—obscure niger, subtiliter cinereo-pubescent, capite subtilissime punctulato, thorace latitudine brevior, lateribus rotundatis, angulis posticis obtusis, minus dense punctato, basi utrinque profundius impresso, linea longitudinali utrinque abbreviata, elytris thorace sesqui latioribus, striis sat profundis, interstitiis confertim punctulatis, antennarum articulis duobus, palpis tibiisque piceis. Long. .43. San Jose, et ad flumen Colorado.

5. *obsoletus*,—*obscure purpureus, cinereo-pubescentis, fronte virescente, capite vix subtilissime punctulato, thorace lateribus rotundatis basi subangustato, angulis posticis obtusis, minus dense punctato, punctis sæpius fere obsoletis, basi utrinque leviter striatim-impresso, linea longitudinali profunda, abbreviata, elytris thorace plus sesqui latioribus, striis sat profundis, interstitiis obsolete punctulatis, antennis palpis pedibusque ferrugineis.* Long. .37. San Diego, et Colorado.

6. *monachus*, *elongatus, depressus, cyaneus, elytris breviter cinereo-pubescentibus, thorace cordato, postice valde angustato, versus basin grossius parce punctato, basi utrinque profunde longius impresso, linea longitudinali profunda, elytris thorace duplo latioribus, striis profundis, ad medium punctatis, interstitiis distinctius punctulatis, antennis palpis, pedibusque ferrugineis.* Long. .50. Specimen unicum in valle fluminis Gilæ. *C. solitarius* forma refert.

#### OODES Bon.

1. *elegans*, *elongatus cupreus nitidus, late viridi-marginatus, thorace ovali, latitudine longiore, antice posticeque angustato, basi truncato, angulis posticis fere rectis, basi utrinque puncto impresso, elytris profunde striatis, interstitiis leviter convexis, 3<sup>io</sup> bipunctato, subtus niger, tibiis, tarsis, palpis antennarumque basi pallidis.* Long. .37. Ad fluminis Gilæ ripas, circa Pimas.

#### LORICERA Latr.

1. *foveata*, *piceo-ænea, nitida, thorace transverso, lateribus valde rotundatis, angulis posticis obtusis, subrotundatis, basi utrinque profunde impresso, parceque punctato, elytris thorace latioribus, margine late testaceo, striis usque ad medium profunde punctatis, interstitio 3<sup>io</sup> trifoveato, 5<sup>io</sup>*

ifoveato; antennarum basi, palpis pedibusque pallidis.  
 Long. 31. San Francisco, specimen unicum.

*PÆCILUS* Bon.

1. *cursorius*; oblongus, niger, vix cyanescens, capite subtilissime punctulato, thorace quadrato, antice angustato, lateribus rotundatis, subtilissime canaliculato, margine tenui afflexo, basi punctulata utrinque longius bistriata, elytris striis impunctatis, interstitiis paulo convexis, tertio 3-vel 4-punctato, antennis fuscis, articulis 3 primis ferrugineis.  
 Long. 42. San Diego, ad montes.

2. *subcordatus*, elongatus, fere depressus, supra iridisæneus, nitidus, thorace subcordato, postice angustato, lateribus vix sinuatis, margine non depresso, angulis posticis rectis linea longitudinali abbreviata, basi utrinque bistriata tria externa brevi, punctiformi, elytris striis ultra medium fortiter punctatis, interstitiis paulo convexis, 3<sup>io</sup> tripunctato, antennis palpis pedibusque rufo-piceis. Long. 45. Ad flumina Colorado et Gila.

*PTEROSTICHUS.*

*Feronia* Dej.

1. *lustrans*, alatus elongato-oblongus, subdepressus, niger nitidus, thorace latitudine vix brevior, subcordato, postice angustato, lateribus rotundatis, postice sinuatis, angulis posticis rectis, basi parce punctato, utrinque profunde impresso, elytris thorace non latioribus, striis profundis impunctatis, interstitiis paulo convexis, 3<sup>io</sup> tripunctato. Long. 43. San Francisco, San Jose, et Sta Isabel: P. m u t o &c., similis, at minus convexus.

2. *simplex*, apterus elongato oblongus, sat convexus, niger subnitidus, thorace subquadrato latitudine non longiore

**lateribus** rotundatis, angulis posticis, fere rectis, non rotundatis, basi utrinque profunde unistriato, linea longitudinali postice abbreviata, elytris thorace non latioribus, ovalibus, tenuiter striatis, interstitiis planis, 3<sup>ia</sup> impunctato, palpis rufo-piceis. Long. .65. San Jose et Sta Isabel.

3. **illustris**, elongatus, niger nitidus, thorace latitudine fere longiore, cordato, postice magis subito angustato, **lateribus** rotundatis, postice sinuatis, angulis posticis rectis, **prominulis**, basi utrinque striato, elytris transversim convexis, **thorace** non latioribus profunde striatis, interstitiis convexis, **stria rudimentali** brevi palpis rufo-piceis mesopleuris impunctatis. Long. .65. San Diego et Sta Isabel. P. ad oxum (Say) revocat. Variat striis elytrorum obsolete punctatis.

4. **contractus**, elongatus, niger nitidus, thorace latitudine fere longiore, subcordato, postice sensim angustato, **lateribus** leviter rotundatis, vix sinuatis, angulis posticis rectis, basi utrinque striato, elytris transversim minus convexis, thorace fere latioribus, profunde striatis, interstitiis leviter convexis, **stria rudimentali** longiuscula, palpis rufo-piceis mesopleuris punctatis. Long. .50. San Jose: præcedente angustior, elytris minus convexis.

5. **Isabellæ**, elongatus, niger nitidus, thorace latitudine paulo brevior, subcordato, postice angustato, **lateribus** rotundatis, postice breviter vix sinuatis, angulis posticis fere obtusis, basi utrinque striato, elytris transversim minus convexis, thorace paulo latioribus, profunde striatis interstitiis paulo convexis, **stria rudimentali** longiuscula, palpis rufo-piceis, mesopleuris antice punctatis. Long. .66. Sta Isabel.

#### ANISODACTYLUS Dej.

1. **californicus**, oblongus, minus convexus, niger nitidus, capite subtiliter punctulato, rubro-notato, thorace parce punctulato, latitudine non sesqui brevior postice an-

gustato, lateribus minus tenuiter marginatis, sinuatis, angulis posticis rectis prominulis, basi utrinque late impressa denseque punctulata, elytris striis tenuibus, interstitiis paulo convexis, 3<sup>io</sup> unipunctato, palpis antennarumque articulo 1<sup>mo</sup> rufo-piceis. Long. .47. Oregon et California; variat elytris bipunctatis: Dej. 4, 148.

2. *confusus*, oblongus, minus convexus, niger nitidus, capite subtiliter punctulato rubro-notato, thorace punctulato, latitudine sesqui brevior, postice angustato, lateribus non sinuatis, tenuiter marginatis angulis posticis rectis, non prominulis, basi utrinque late impressa, dense punctulata, elytris thorace non latioribus, striis tenuibus, interstitiis paulo convexis, 3<sup>io</sup> impunctato, palporum apice, antennarumque articulo 1<sup>mo</sup> rufo-piceis, hoc fusco maculato. Long. .46. San Francisco, frequentissimus; præcedenti similis, at thorace lateribus non sinuatis, angulisque posticis non prominulis distinctus.

3. *brevicollis*, oblongus, minus convexus, niger, capite subtiliter punctulato, vix rubro-notato, thorace punctulato, latitudine fere duplo brevior, postice oblique angustato, lateribus non sinuatis, margine tenui depresso, ad medium evanescente, angulis posticis obtusis, basi utrinque latius minus profunde impressa, dense punctulata; elytris striis profundioribus, interstitiis paulo convexis, 3<sup>io</sup> unipunctato. Long. .47. Sta Isabel: præcedentibus latior.

4. *consobrinus*, oblongus, fere depressus, niger nitidus, capite vix punctulato, thorace punctulato, latitudine plus sesqui brevior, postice oblique angustato, lateribus non sinuatis, margine tenui depresso, fere ad basin extendente, angulis posticis obtusis, basi utrinque profundius impressa, dense punctulata, elytris profundius striatis, interstitiis paulo convexis, 3<sup>io</sup> unipunctato, palpis apice, antennarumque art. 1<sup>mo</sup> rufo-piceis. Long. .47. California borealis.

5. *similis*, oblongus, minus convexus, niger, capite

vix punctulato, thorace punctulato, latitudine sesqui brevior, postice non angustato, margine tenui depresso pone medium evanescente, angulis posticis rectis, basi vix impressa, dense punctulata, elytris tenuiter striatis, interstitiis fere planis, 3<sup>o</sup> impunctato, antennarum articulo 1<sup>mo</sup> rufo-piceo, fusco-notato. Long. .46. Oregon.

6. *alternans*, oblongus sat convexus, nigro-viridis, nitidus, thorace latitudine vix brevior, postice angustato, lateribus subsinuatis tenuiter marginatis, angulis posticis rectis, basi utrinque profunde impressa, punctataque; elytris thorace latioribus, (feminae opacis) subtiliter punctulatis, brevissime pubescentibus, interstitiis fere planis, alternatim densius punctulatis; ad apicem sinuatis, antennarum articulo 1<sup>mo</sup> rufo. Long. .4. San Jose, minus frequens.

7. *amaroides*,—ovalis sat convexus, obscure æneus, thorace latitudine duplo brevior, antrorsum angustato, lateribus rotundatis tenuiter marginatis, angulis posticis rectis, basi utrinque sat profunde impressa, punctataque: elytris thorace vix latioribus, interstitiis fere planis, 3<sup>o</sup> unipunctato, antennis basi testaceis. Long. .38. San Francisco, minus frequens; tibiis anticis calcare terminali simplici; variat læte cyaneus, subtus rufo-piceus.

#### DICHEIRUS Man.

*Genus Amphasie proximum, differt tamen tarsis posticis minus tenuibus, articulis 2—4 triangularibus, fere transversis: tibiisque anticis calcare trifido (sicut in Anisodactylis §2) terminalis. In mare tarsi intermedii vix dilatati sunt, antici valde dilatati, subtus dense breviter setosi articulo 1<sup>mo</sup> angustiore. Errore inductus Ill. Com. Mannerheim tibias anticæ bicalcaratas declarat; sed rite examinatæ, calcar trifidum plane exhibent.*

1. *parallelus*, oblongo-elongatus, parallelus, nigro-

piceus, parce brevissime setosus, capite thoraceque parce grosse punctatis, hoc latitudine vix brevior, postice vix angustato, angulis posticis obtusis, subrotundatis, basi vix impresso: elytris interstitiis leviter convexis, minus dense biseriatim punctatis, pedibus rufo-piceis. Long. .3. San Jose et San Diego, minus frequens.

2. obtusus, oblongus, depressus, nigro-piceus, pube rigida brevi cinerea vestitus, capite thoraceque grosse punctatis, hoc latitudine brevior, postice angustato, angulis posticis valde obtusis, basi utrinque leviter impresso, elytris interstitiis fere planis, dense biseriatim punctatis, pedibus palisque ferrugineis. Long. .29. San Jose minus frequens.

HARPALUS Latr.

1. obesus, oblongo-ovalis, paulo convexus niger nitidus, thorace latitudine fere duplo brevior, apice angustato, margine non depresso, angulis posticis rectis, basi utrinque obsolete biimpresso, vix rugose-punctulato, elytris thorace paulo latioribus, apice oblique sinuatis, striis postice profundioribus, interstitiis vix convexis, 3<sup>io</sup> unipunctato, antennarum basi testaceis. Long. .35. Specimen unicum femineum; Oregon.

2. advena, elongato-ovalis, paulo convexus, niger nitidus, thorace latitudine brevior, antice subangustato, angulis posticis rectis, margine ad medium obsolete explanato, basi utrinque leviter foveato, obsolete punctulato, elytris apice oblique subsinuatis, interstitiis vix convexis, 3<sup>io</sup> unipunctato, palpis antennarumque basi rufo-testaceis. Long. .39. H. cauto maior, nitidior, thorace basi profundius impresso, elytris striis profundioribus differt.

3. fraternus, oblongus, fere depressus, niger nitidus, thorace latitudine fere duplo brevior, postice angustato, angulis posticis obtusis, ultra medium tenuiter marginato, basi utrinque vix impressa obsoleteque punctulata, elytris thorace

non latioribus, apice oblique subsinuatis, interstiis fere planis, 3<sup>o</sup> unipunctato, palporum apice truncata rufescente. Long. .58. Specimen unicum masculinum. Oregon. Habitus fere *Anisodactyli confusi*, at latior.

## ODONTIUM LEO.

1. *carinatum*, æneum, nitidum, thorace latitudine sesqui brevior, basi vix angustato, utrinque breviter biimpresso, elytris profunde seriatim punctatis, carinula obliqua humerali ad striam 5<sup>am</sup> extendente, antennarum palporumque basi pallidis: pedibus, ferrugineo-æneis. Long. .25. Ad flumen Colorado.

## OCHTHEDROMUS ZIM.

*A. striis elytrorum integris.*

1. *bifossulatus*, æneus, versus medium nitidus, thorace latitudine plus sesqui brevior, basi valde angustato, breviterque sinuato, angulis posticis prominulis, lateribus valde rotundatis basi utrinque latius minus profunde impresso, rugosoque: elytris subtiliter seriatim punctatis, ad striam 3<sup>iam</sup> profunde bifoveatis, trochanteribus anticis rufescentibus. Long. .3. San Diego, minus frequens. *O. americanum* valde refert.

2. *sexpunctatus*, elongatus depressus, piceo-subæneus, thorace postice subangustato, lateribus rotundato, angulis basalibus fere obtusis, basi utrinque breviter 1-striata, carinulaque ad angulum instructa, elytris testaceis striatopunctatis, interstitio 3<sup>io</sup> punctis 3 parvis notato; palpis pedibusque testaceis. Long. .22. Specimen unicum ad Colorado: elytris tripunctatis abnormis hæc species.

3. *insulatus*, depressus nigroæneus, pernitidus thorace brevi, postice valde angustato, lateribus valde rotundato, angulis posticis rectis, basi utrinque impresso rugoso et carinula angulari instructo, elytris thorace latioribus, subtiliter



*striatopunctatis*, bipunctatis, humeris macula rectangulata pallida circumcinctis, altera annulari ad apicem, epipleurisque pallidis: pedibus piceis. Long. 25. San Diego, in pratis salinis: species pulcherrima, maculis apicalibus ad suturam conniventibus, fasciam undulatam formantibus.

4. *laticollis*, depressus nigro-æneus, nitidus, thorace brevi, postice valde angustato, lateribus valde rotundato, angulis posticis rectis, basi utrinque profundius impressa, carina angulari distincta, elytris thorace paulo latioribus, subtiliter striatis, bipunctatis, striis antice minute punctatis, margine toto fasciis solitis postica brevi, apiceque late, epipleuris antennis pedibusque pallidis. Long. 17. Colorado; elytrorum margo extima nigra est; variat abdomine rufo.

5. *approximatus*, depressus, nigro-æneus, nitidus, thorace latitudine sesqui brevior, postice angustato, lateribus rotundatis, postice subsinuatis, angulis rectis, basi utrinque profundius impresso, carina angulari longa acuta, elytris subtiliter striatis, bipunctatis, striis antice minutissime punctatis, maculis solitis indistinctis, apice, epipleurisque pallidis, pedibus obscure testaceis. Long. 21. San Diego, et San Francisco, variat maculis elytrorum fere obsoletis, epipleurisque nigris.

6. *consentaneus*, depressus, nigro-æneus, nitidus, thorace latitudine sesqui brevior, postice angustato, lateribus rotundatis, postice subsinuatis, angulis rectis, basi utrinque profundius impresso, carina angulari longuiscula, acuta, elytris subtiliter striatis, bipunctatis, striis antice minutissime punctatis, maculis solitis indistinctis, apiceque pallidis, epipleuris plus minusve, pedibusque obscure testaceis. Long. 17. San Diego. Præcedenti simillimus, sesqui minor, carinaque thoracis brevior sat distinctus.

7. *indistinctus*, depressus, nigro-æneus, nitidus, thorace latitudine sesqui brevior, postice angustato lateribus haud sinuatis, angulis fere obtusis, basi utrinque profundius,

impresso, rugosoque, carina angulari distincta brevi, elytris subtiliter striatis, bipunctatis, striis ad medium punctulatis, maculis solitis apice epipleurisque pallidis: pedibus antennarumque basi testaceis. Long. .17. *Bembidium indistinctum* Man. Bull Mosc. 1843. Ad San Francisco abundat. Variat maculis plus minusve obsoletis.

8. *t e s s e l a t u s*, depressus nigro-subæneus, nitidus, thorace latitudine sesqui brevior, postice angustato, lateribus vix sinuatis, angulis rectis, basi latius profunde impresso, rugosoque, carina angulari longiuscula subtili, elytris striatis, bipunctatis, striis ad medium punctatis, maculis solitis valde distinctis angustis, apice, epipleuris, antennarum basi, pedibusque pallidis. Long. .15. San Diego, in salinis.

9. *e p h i p p i g e r*, longiusculus, minus depressus, seneo-virescens, nitidus, thorace latitudine fere sesqui brevior, postice leviter angustato, angulis rectis, basi utrinque profundius impresso, punctulato, carina subtili distincta, elytris elongatis thorace vix latioribus, bipunctatis, fortius striato-punctatis, striis ad apicem fere obsoletis, pallidis, scutello, fascia angulata ad medium, maculaque rotundata subsuturali paulo pone medium nigricantibus, palpis pedibusque testaceis, antennis obscuris. Long. .16. San Diego, in pratis salinis, minus frequens.

B. *Striis plus minusve obsoletis.*

10. *c o n n i v e n s*, minus depressus, nigro-æneus, nitidus, capite sulcis frontalibus profundis antice conniventibus, thorace cordato, angulis posticis rectis, basi utrinque profunde impresso, carina angulari distincta, elytris bipunctatis, striato-punctatis, stria 7<sup>ma</sup> vix distincta, macula postica, apice, antennarum basi pedibusque flavo-testaceis. Long. .13. San Francisco, minus frequens. Species omnino abnorma; divisiones Notaphum et Peryphum conjungere videtur.

11. *a n g u l i f e r*, niger nitidissimus, sulcis frontalibus antice conniventibus thorace cordato, angulis posticis acutis, basi utrinque profunde impresso, carina angulari brevi, elytris

thorace latioribus convexis, bipunctatis, usque ad medium subtiliter punctato-striatis, apice maculaque subapicali obscure pallidis. Long. .15. Specimen unicum : San Francisco.

12. *aratus*, nigro-æneus, nitidus, thorace latitudine vix brevior, postice angustato, lateribus rotundatis postice sinuatis angulis<sup>o</sup> rectis, basi profunde impresso, carina distincta, elytris thorace latioribus, convexiusculis, bipunctatis, punctato-striatis, punctis approximatis, ad apicem obsoletis, stria 7<sup>ma</sup> versus apicem exarata : macula subapicali pallida parva notatis ; tibiis tarsisque obscure testaceis. Long. .17. Ad flumen Gila minus frequens.

13. *grandicollis*, nigro-æneus, nitidissimus, thorace latitudine sesqui brevior, postice magis angustato, lateribus valde rotundatis, postice breviter sinuatis, angulis rectis, basi marginato, utrinque fortiter impresso, carina angulari distincta, elytris thorace vix latioribus convexis subtiliter punctato-striatis, striis postice obsoletis, 7<sup>ma</sup> ad medium desinente. Long. .18. San Diego : specimen unicum.

14. *vilis*, nigro-æneus, nitidus, sulcis frontalibus parallelis, thorace cordato, angulis posticis acutis, basi fere marginato utrinque profunde impresso, carina angulari distincta, elytris thorace latioribus, convexis, bipunctatis, fortiter punctato-striatis, versus apicem lævigatis, striis externis brevioribus, 7<sup>ma</sup> ad medium desinente. Long. .10. Specimen unicum : San Diego.

15. *dubitans*, nigro-æneus, nitidus, sulcis frontalibus convergentibus, thorace valde cordato, angulis posticis vix rectis, basi utrinque impressa punctis marginata, carina angulari minutissima, elytris bipunctatis punctato-striatis, striis internis profundioribus, omnibus ad apicem oblitteratis ; macula pone humerum triangulari obscure pallida. Long. .12. Ad San Francisco, minus frequens. O. affinem. Lec. (*Bemb. aff.* Say) refert.

16. *cruralis*, nigro-æneus, nitidus, sulcis frontalibus

convergentibus, thorace valde cordato, angulis posticis vix rectis, basi marginato, utrinque profunde impresso, carinula angulari vix distincta, elytris thorace latioribus bipunctatis, subtilissime punctato-striatis, ad apicem lævigatis, tibiis, tarsisque pallidis. Long. .11. San Jose.

17. *mundus*, niger, nitidissimus, thorace latitudine vix brevior, postice angustato, lateribus rotundatis, vix sinuatis angulis posticis rectis, basi marginato, utrinque profundius foveato, carina angulari brevissima; elytris thorace latioribus, bipunctatis, estriatis, maculis utrinque 2 pallidis ornatis; antennarum basi, pedibusque flavis. Long. .14. San Jose, minus frequens.

18. *striola*, subdepressus, niger nitidus, vix æneus, thorace latitudine sesqui brevior, postice angustato, lateribus valde rotundatis, postice sinuatis, angulis rectis, basi utrinque longius impresso, carina angulari distincta, elytris thorace latioribus, bipunctatis, subtiliter seriatim punctatis, striis postice oblitteratis, 7<sup>ma</sup> nulla; macula subapicali, antennarum basi, palpis pedibusque flavis. Long. .23. San Diego. *O. postremus* (Lec.) refert.

19. *Mannerheimii*, depressus, nigro-æneus, subviridescens, nitidus, thorace latitudine fere sesqui brevior, postice angustato, lateribus rotundatis, angulis posticis rectis, fortius marginato, basi utrinque breviter profundius impresso, punctulatoque, carina nulla; elytris thorace latioribus, subtiliter striato-punctatis, bipunctatis, stria 7<sup>ma</sup> postice obsoleta, 5<sup>a</sup> ad apicem profundior; macula magna humerali, alteraque apicali, antennarum basi palpis pedibusque flavis. Long. .3. *Bembidium transversale* Man. Bull. Mos. 1843, 216. Ab *Och. transversali* Lec. (*Bemb. trans.* Dej.) angulis thoracis posticis acutioribus, striaque elytrorum 7<sup>ma</sup> haud oblitterata distinctus. San Diego, minus frequens.

20. *trechiformis*, depressus, niger cæruleo-micans, thorace latitudine vix sesqui brevior, postice angustato, la-

teribus rotundato, angulis posticis vix rectis, basi utrinque breviter profunde impresso, carina angulari distincta, elytris thorace latioribus, bipunctatis, striis subtilissimis, obsoleto punctatis, externis valde abbreviatis: 5<sup>a</sup> ad apicem distincta, 7<sup>a</sup> nulla, antennarum basi palpis pedibusque flavis. Long. .22. Habitat ad montes, circa Sta Isabel. O. planum Lec. (*Pery. plan.* Hald.) refert, at carina angulari thoracis valde distinctus.

21. *iridescens*, depressus, niger, cœruleomicans, thorace latitudine vix brevior, postice subangustato, lateribus paulo rotundato, angulis posticis rectis, basi utrinque latius impresso, punctulatoque, carina angulari indistincta, elytris thorace latioribus, bipunctatis, subtiliter striatis, striis externis oblitteratis, 5<sup>a</sup> ad apicem distinctiore; apice rufescente, antennarum basi pedibusque flavis. Long. .15. Specimen unicum: San Jose. Priorem refert: plus duplo minor.

PERICOMPSUS.

*Caput sulcis frontalibus. Mentum basi angustum, profundius biimpressum, dente mediali brevissimo fere obsoleto. Palpi labiales crassissimi. Elytra bipunctata stria scutellari nulla, suturali haud recurvata; marginali integra. Tarsi anticis ♂ haud dilatati. (?)*

Ad hoc genus pertinet *Bembidium ephippiatum* Say. (*Tachys ephippiatus* Lec.) forma propter striam suturalem simplicem, et marginalem haud interruptam locum genericum tenere haud indignum. Specimina plurima examinavi, sed tarsis anticis dilatatis in nullo invenire potui.

1. *sellatus*, rufo-testaceus, vix nitidus, thorace latitudine vix brevior, confertim rugoso, postice angustato, lateribus leviter rotundatis, late marginatis, ad basin marginato, utrinque longius impresso, angulis posticis rectis; elytris thorace latioribus, striis sex profundis notatis, disco macula magna communi fere ad marginem extensa rufo-picea, sutura

infuscata. Long. .12. Ad flumen Colorado, minus frequens. Variat macula antice indeterminata.

2. *lætulus*, elongatus, parallelus, rufo-testaceus nitidus, thorace latitudine plus sesqui brevior, postice paulo angustato, angulis posticis rectis, basi valde marginato, utrinque bipunctato, elytris thorace vix latioribus, striis sex subtilibus punctulatis notatis, disco macula magna oblonga communi picea, sutura infuscata. Long. .10. In valle fluminis Gila, circa Pimas.

*Genus sic constitutum, limitibus distinctis definitum, diagnosi sequenti facile cognoscitur. Imitatur sulcis frontalibus; mentum medio breviter dentatum: elytra bipunctata, stria scutellari nulla, suturali valde recurvata, marginali profunda late interrupta.*

Secundem puncturam elytrorum in turmas duas dividi possint.

A. *Elytra puncto secundo paulo pone medium sito.* (Corpus minus depressum.)

1. *obesulus*, rufo-testaceus, nitidissimus, thorace latitudine sesqui brevior, postice angustato, lateribus valde rotundato, angulis posticis rectis, basi profunde transversim impresso, tripunctato, utrinque foveato, carina angulari brevissima, elytris thorace latioribus, dorso obscurioribus, stria suturali profunda. Long. .12. In vallem fluminis Gila, in truncis putridis. Speciebus aliis maior et crassior.

2. *anthrax*, niger, nitidissimus, thorace brevi, postice vix angustato, lateribus rotundato, angulis posticis rectis, basi profunde transversim impresso, utrinque foveato, carinula angulari brevissima, elytris thorace vix latioribus, stria suturali profunda, antennarum basi, tibiis tarsisque piceis. Long. .09. Specimen unicum San Diego.

3. *rapax*, elongatus, rufo-testaceus, nitidissimus, tho-

race latitudine vix brevior, postice haud angustato, lateribus rotundatis, angulis posticis rectis, basi profunde transversim impresso, utrinque profundius foveato, elytris thorace vix latioribus, stria suturali profunda. Long. .08. Ad fluminis Gilæ ripas, frequens.

4. *a u d a x*, elongatus, testaceus, nitidissimus, thorace latitudine fere sesqui brevior, basi haud angustato, lateribus rotundatis, angulis posticis fere obtusis, basi profunde transversim impresso, sub-tripunctato, utrinque minus profunde foveato, carina vix distincta, elytris thorace vix latioribus, stria suturali profunda, basi sæpius vix attingente. Long. .09. Ad Colorado et Gilæ ripas.

*B. Elytra puncto secundo fere ad apicem sito.* (Corpus gracilius depressiusculum thorace basi transversim impresso, sæpius haud foveato.)

5. *m a r g i n e l l u s*, nigro-piceus, nitidissimus, thorace latitudine sesqui brevior, postice angustato, angulis fere rectis, lateribus valde rotundatis, elytris thorace latioribus, striis 3 subtilibus, suturali profundiore, margine latissimo flavo (margine summo infuscato); antennarum basi pedibusque flavis. Long. .10. Habitat ad flumen Colorado, circa millia xxx a mare.

6. *v i t t i g e r*, nigro-piceus, nitidissimus, thorace latitudine sesqui brevior, postice angustato, angulis fere rectis, lateribus valde rotundatis, thorace latioribus elytris bistriatis, stria suturali profundiore, vitta submarginali flava a humeris fere ad apicem extensa, antennarum basi, pedibusque flavis. Long. .10. Habitat ad San Diego, in pratis salinis. Præcedente paulo minor, thorace postice paulo minus angustato.

7. *m o r d a x*, elongatus, depressus, pallide testaceus, nitidus, thorace latitudine brevior, postice angustato, angulis posticis prominulis, elytris thorace paulo latioribus obsolete bistriatis, stria suturali vix profundiore. Long. .09. Specimen unicum ad Colorado.

8. *virgo*, nigro-piceus, elongatus, fere depressus, nitidus, thorace piceo, latitudine vix brevior, postice subangustato, angulis fere rectis, elytris thorace latioribus, striis 2 vel 3 obsoletis suturali vix profundiore, pallidis disco ad medium late infuscato, antennis, pedibusque pallidis. Long. .09. Specimen unicum ad San Diego.

9. *edax*, elongatus, fere depressus, piceus, nitidus, thorace latitudine fere duplo brevior, postice angustato, lateribus rotundatis, angulis posticis obtusis, basi utrinque late foveato, elytris thorace latioribus, obsolete striatis, striis 2 internis profundioribus; antennarum articulo 1<sup>mo</sup> pedibusque pallidis. Long. .07.

10. *corax*, latiusculus, depressus, niger nitidus, thorace latitudine duplo brevior, postice angustato, lateribus rotundato, angulis posticis obtusis, reflexis, basi utrinque subfoveato, elytris thorace latioribus, striis 2 indistinctis, pedibus piceis. Long. .08. Specimen unicum ad flumen Novum, desertorum Colorado. *T. inornatum* refert.

11. *vorax*, latiusculus, depressus rufo-testaceus, nitidus, capite obscuro, thorace latitudine plus duplo brevior, postice angustato, lateribus rotundato, angulis posticis obtusis reflexis, basi utrinque foveato, elytris thorace latioribus, striis 2 indistinctis; disco sæpius infuscato. Long. .08. Ad fluminis Gilæ et Colorado ripas, frequens.

#### AKEPHORUS.

*Ligula brevis cornea, apice rotundata; maxilla longa, apice acuta inflexa, intus valde barbata: mandibula longiuscula, apice valde acuta curvataque, intus edentata. Mentum vix transversum planum, antrorsum angustatum, valde emarginatum, medio dente brevi armatum, lobis lateralibus acutis, lateribus rotundatum. Labrum profunde emarginatum, lobis rotundatis. Palpi articulo ultimo subsecuriformi; antennæ*



*articulis 2<sup>do</sup> 3<sup>o</sup> que æqualibus. Tibiæ anticæ spinis terminalibus longissimis, extus digitatæ, tarsi tenues, paranychio inter ungues nullo.*

Habitus fere *Dyschirii*, at thorace majore, elytrisque ante medium gradatim attenuatis, humeris omnino nullis, facie peculiari gaudet: elytris pone medium declivibus, apice subito rotundatis, punctis marginalibus nullis.

1. *marinus*, pallide-testaceus, subnitidus, capite thoraceque subtilissime rugosis, hoc subquadrato, basi rotundata, medio producta, linea longitudinali integra: elytris subovatis, antrorsum valde angustatis, pone medium sensim paulo angustatis, apice declivibus, subito subtruncatis, tenuiter striatis, margine haud punctato, macula transversa communi fusca ad medium ornatis. Long. .25. Ad littora oceani circa San Diego, Junio frequentissimus: arena fodiens, et crustaceorum minorum raptu subsistens: elytris punctis nullis insculptis, striis ad apicem et basin obsoletis.

DYSCHIRIUS Bon.

1. *tridentatus*, nigro-æneus, nitidus, epistomate 3-dentato, fronte breviter cristata, sulcis profundis, thorace transverso, convexo, antrorsum angustato, elytris basi marginatis, striis profundis punctatis, postice integris, interstitiis paulo convexis, 3<sup>o</sup> tripunctato, tibiis anticis extus acute bidigitatis; spina exteriori longiore, paulo curvata. Long. .18. Specimen unicum ad San Diego lectum.

2. *convexus*, nigro-æneus, nitidus, epistomate 3-dentato, fronte breviter cristato, sulcis frontalibus profundis, thorace transverso, convexo, antrorsum subangustato, elytris basi marginatis, striis postice integris, tenuiter punctatis, interstitiis planis, 3<sup>o</sup> tripunctato; tibiis anticis extus uni-digitatis, denteque superiore armatis: spina exteriori vix longiore, paulo curvata. Long. .16. San Diego, minus frequens.

3. *patruelis*, nigro-æneus, nitidus, epistomate bidentato, lateribus obliquis, fronte subtiliter cristata, sulcis profundis, thorace ovali, non transverso, elytris basi non marginatis, striis integris, ultra medium tenuiter punctatis, interstitiis paulo convexis, 3° tripunctato, tibiis anticis extus 1-digitatis, denteque superiore armatis, spina exteriori longiore curvata. Long. .14. San Diego, sat frequens.

4. *consobrinus*, nigro-æneus, nitidus, epistomate truncato, lateribus fere rotundatis, fronte transversim impressa, sulcis profundis, thorace rotundato, elytris non angustiore, his basi non marginatis, striis integris ultra medium punctatis, interstitiis convexis, 3° bidentato; tibiis anticis extus muticis, spina exteriori vix longiore curvata. Long. .13. Specimen unicum: San Francisco.

5. *integer*, nigro-æneus, nitidus, epistomate bidenticulato, fronte sulcis profundis, puncto elevato inter oculos notata, thorace rotundato, elytris vix angustiore, his basi marginatis, striis profundis postice integris, ad medium grosse punctatis, interstitiis convexis, 3° tripunctato, tibiis anticis extus bidenticulatis, spina exteriori non longiore, curvata. Long. .12. Ad flumen Colorado, frequens.

6. *aratus*, elongatus, nigro-æneus, nitidus, epistomate bidenticulato, fronte sulcis curvatis profundis, thorace subquadrato, antice vix angustato, elytris basi non marginatis, striis utrinque abbreviatis, usque ad medium grosse punctatis, apice striola obliqua profunde exarata notatis, pedibus rufis, tibiis anticis extus 1-dentatis, spinis æqualibus valde curvatis. Long. .12. Ad fluminis Gilæ ripas: interstitio 3° impunctato singularis.

7. *analis*, elongatus, nigro-æneus, nitidus, epistomate bidenticulato, fronte sulcis profundis, thorace ovali, linea longitudinali profundiore, elytris basi non marginatis, striis basi abbreviatis, antice profundis, usque ad medium grosse punctatis, externa apice exarata, interstitio 3° tripunctato, apice

rufis : antennarum basi pedibus posterioribus abdomineque testaceis : pedibus anticis rufo-piceis, tibiis extus unidentatis, denteque superiore obsoleto, spinis æqualibus, valde curvatis. Long. .12. Ad fluminis Colorado ripas.

*SCHIZOGENIUS Putzeys.*

1. *depressus*, elongatus, valde depressus, rufus nitidus, epistomate 5-dentato, capite plurisulcato, occipite punctato, thorace antrorsum non angustato, elytris striis ultra medium subtiliter punctulatis, interstitiis subconvexis, alternatim pluripunctatis, tibiis anticis extus bidigitatis. Long. .16. Ad flumen Colorado.

2. *simplex*, elongatus, subdepressus, niger nitidus, epistomate 5-denticulato, capite plurisulcato, thorace antrorsum vix angustato, elytris striis profundis, impunctatis, interstitiis valde convexis alternatim pluripunctatis, ore antennarum pedibusque rufis, tibiis anticis extus bidigitatis, denteque superiore armatis. Long. .16. Colorado.

3. *pluripunctatus*, elongatus, vix depressus, niger ænescens, nitidus, epistomate 5-dentato, capite plurisulcato, occipite punctato, thorace antrorsum leviter angustato, elytris striis profundis, obsolete punctatis, interstitiis convexis, alternatim punctis 15—20 impressis : pedibus ferrugineis, tibiis anticis extus bidigitatis, denteque obsolete superiore armatis. Long. .17. Ad flumen Colorado : præcedenti similis, at maior, punctisque elytrorum magis approximatis.

4. *crenulatus*, elongatus, cylindricus, niger, subænescens, nitidus, epistomate 4-denticulato, capite plurisulcato, occipite punctato, thorace utrinque bistriato, stria externa utrinque valde abbreviata, punctata, elytris striis profundis, fere ad apicem fortiter crenatis, antennarum pedibusque rufo-piceis, tibiis anticis extus bidigitatis, denteque superiore armatis. Long. .17. Ad flumen Colorado.

## CLIVINA Latr.

1. *confusa*, elongata, cylindrica nigra nitida, epistomate truncato, alis rotundatis, sulcis frontalibus integris, sinuatis, occipite lævi, thorace latitudine non longiore, antrorsum paulo angustato, elytris striis profundis, fere ad apicem punctatis, interstitio 3<sup>io</sup> 5-punctato, tibiis anticis extus bidigitatis, denticuloque obsoleto superiore armatis, spina terminali exteriori longiore, breviter curvata, intermediis calcaratis. Long. .3. Ad fluminis Colorado ripas: habitus fere *C. dentipedis*, et femoribus anticis similiter armatis; differt tamen thorace breviori, antice subangustato.

2. *punctulata*, elongata, depressa, rufa, nitida, epistomate truncato, alis obliquis, subsinuatis, capite parce punctulato, sulcis frontalibus profundis, inter oculos utrinque longitudinaliter elevato, medio sulcato, thorace punctulato, subquadrato, antice non angustato, elytris striis fere ad apicem punctatis, interstitiis subconvexis, 3<sup>io</sup> 4-punctato, tibiis anticis extus bidigitatis, denticuloque superiore armatis, intermediis extus calcaratis. Long. .21. San Jose, in aquosis.

## SCARITES Fabr.

1. *californicus*, niger nitidus, mandibularum sulco integro, profundo, vix rugoso, impressionibus frontalibus profundis, thorace latitudine breviori, angulis posticis minutis prominulis, antrorsum non angustato, elytris obsolete striatis, striis externis omnino oblitteratis, interstitio 3<sup>io</sup> tripunctato; tibiis intermediis extus longe flavo-ciliatis, bicalcaratisque, antennis testaceis. Long. .7. Specimina duo, ad San Diego. *S. subterraneo* simillimus, et striis elytrorum externis oblitteratis solum distinctus.

CALOSOMA Fabr.

1. *a n g u l a t u m*, nigrum, capite varioloso-punctato, utrinque profundius impresso, thorace valde transverso, lateribus acute angulatis, margine vix reflexa, basi angustato, subrotundato, subtiliter rugoso, postice punctato, elytris nitidis, subtiliter seriatim punctatis, punctis versus basin maioribus, interstitiis vix rugosis. Long. .13. Specimen mortuum circa Pimas.

2. *s e m i l æ v e*, nigrum, opacum, fronte dædaleo-punctato, thorace dædaleo-punctato, grossius pone medium, valde transverso, lateribus valde rotundatis, margine subreflexo, basi apice non minore, bisinuata utrinque impressa, elytris subtiliter seriatim punctatis, punctis antice maioribus, interstitiis usque ad medium imbricato-rugosis. Long. .85. Specimen unicum, San Jose: coleoptera alteri ad San Diego inveni.

3. *t e p i d u m*, atrum, capite thoraceque confertissime rugosis, hoc valde transverso, postice angustato, lateribus valde rotundatis, margine subreflexo, basi leviter bisinuata, utrinque impressa, elytris postice leviter dilatatis, subtiliter striatis, interstitiis valde rugosis, fere in granulas interruptis, foveisque ænescentibus serie triplici impressis. Long. .75. *C. calido* brevius et elytris fere scabris diversum; *Callistheni* simile videtur, et antennis articulis 5 et 6 glabris marginibus solis pubescentibus affinitatem indicat, at parte glabra male definita, articulisque 7—11 æqualiter pubescentibus, in hoc genere inscribendum. Oregon. In Coll. Exp. Exp. specimen alterum vidi.

CALLISTHENES Fischer.

*Genus a Carabis et Calosomatis distinctum antennis capite cum thorace non longioribus, articulis 1—4 carinatis,*

*in Species of Californian Coleoptera.*

*re us suocompressis, glabris, marginibus pubescentibus. Corpus apterum.*

Huc pertinent *Calosoma lepidum* Say (J. Ac. 3, 149, nec Dej.) et *Carabus Zimmermani* Lec. (An. Lyc. 4, 445.)

1. *Wilkesii*, ater punctatus, thorace latitudine plus duplo brevior postice angustato, lateribus valde rotundatis, margine subreflexo, basi late emarginata, angulis posticis leviter productis, coleopteris latitudine fere sesqui longioribus, postice non dilatatis, utrinque foveis serie triplici vix distinctis. Long. '65. Oregon. Specimen quoque in Ex. E. Car. Wilkes duce, collectione vidi.

2. *moniliatus*, ater, opacus, capite thoraceque confertim rugosis, et hoc latitudine fere duplo brevior, postice subangustato, lateribus modice rotundatis, margine vix reflexo, basi emarginata, angulis paulo productis, coleopteris latitudine longioribus, confertim rugosis, utrinque callis lævibus oblongis foveisque serie triplici dispositis. Long. '65. Oregon. Dom. Wilcox. Reliquis longior, statura fere *Carabi serrati* Say.

*ELAPHUS* Fabr.

1. *lævigatus*, ater vix æneus, nitidus, capite subtiliter punctato, fronte verticeque foveato, thorace subtransverso, cordato, basi apice minore, lateribus valde rotundatis postice breviter sinuatis, impressionibus profundis, disco utrinque foveato, elytris thorace vix duplo latioribus, postice non dilatatis, foveis solitis vix purpureis, interstitiis lævigatis, pectoribus omnibus subtiliter dense punctatis. Long. '3. San Francisco Maio frequens.

*OMOPHRON* Latr.

1. *dentatum*, subtus nigrum, supra cum antennis pe-

dibusque pallidum, labro argenteo, capite postice thoracis macula transversa fere ad latera extensa antice 1-dentata, postice 3-dentata, elytris sutura, macula scutellari, duabus basalibus conjunctis, fasciis 2 tesselatis, maculaque subapicali communi viridi-æneis: elytris striis punctis minus approximatis impressis, interstitiis vix convexis. Long. .28. San Diego.

2. *Gilæ*, orbiculare, subtus piceum, supra cum antennis pedibusque pallidum, capite postice, thoracis macula transversa minore, elytris sutura, macula postice dilatata scutellari, alteris basalibus conjunctis fasciisque duabus interruptis vel sinuatis, viridiæneis, striis punctis maioribus impressis, interstitiis convexis. Long. .28. Ad fluminis *Gilæ* ripas. Præcedente latius striis elytralibus profundioribus, thoraceque brevior distinctum. In speciminibus omnibus (immaturis?) abdomen rufo-piceum est.

#### DYTISCIDÆ.

##### CNEMIDOTUS Illiger.

1. *callosus*, testaceus, nitidus, capite thoraceque parce punctulatis, hoc macula utrinque basali picea, parce grosse punctata, elytris piceis vix variegatis, seriatim cribratis, costulis 1 vel 2 basalibus ad humerum, calloque elevato in interstitio 3° ad medium sito, margine lutescente. Long. .14. San Francisco et San Diego, frequens.

2. *simplex*, testaceus, nitidus, capite thoraceque parce punctatis, hoc macula utrinque basali picea, grosse punctata, elytris obscurioribus, piceo-sub-variegatis, seriatim grosse punctatis. Long. .14. San Diego, minus frequens.

##### HALIPLUS Latr.

1. *concolor*, rufo-testaceus, nitidus, utrinque valde angustatus, capite thoraceque sat dense punctatis, elytris seriatim grossius punctatis, interstitiis planis, uniseriatim parce

subtiliter punctulatis. Long. .1. Specimen unicum ad flumen Colorado.

CYBISTER Curtis.

1. *ellipticus*, regulariter elongato-ellipticus, supra minus convexus olivaceus, nitidus, thorace latitudine triplo brevior, antrorsum angustato, lateribus haud rotundatis, epistomate, margine thoracis elytrorumque lato, ore, pedibusque anterioribus flavo-testaceis, subtus cum pedibus posticis obscure ferrugineis: elytrorum margine haud explanata. Long. .1.17. lat. .63. Femina, elytris striolis approximatis strigatis, sutura, apiceque laevi. In vallem fluminis Colorado abundat. Variat thoracis margine antica, posticaque testaceis: abdomine utrinque flavo-maculato.

2. *explanatus*, ovalis, postice paulo dilatatus, supra paulo convexus, obscure olivaceus, nitidus, thorace latitudine triplo brevior, antrorsum valde angustato, lateribus haud rotundatis, epistomate, ore, margine thoracis elytrorumque lato, pedibus anterioribus, abdominisque maculis lateralibus flavo-testaceis; subtus cum pedibus posticis ferrugineis; elytrorum margine pone medium paulo explanato. Long. 1.12. lat. .6. Femina, elytris laevibus. Præcedente paulo latior, convexior, margineque elytrorum explanato distinctus: ad San Diego, Colorado et Sacramento minus frequens: elytris sæpius subtiliter confertim tuberculatis.

ACILIUS Leach.

1. *simplex*, latiusculus, ovalis, fere depressus, nigropiceus, thorace brevissimo punctato, marginibus omnibus, fasciaque transversa extus dilatata luteis, elytris confertissime punctatis, luteis nigro-irroratis, margine tenui, sutura antice, fasciaque postica luteis; ore, epistomate, macula transversa verticali, prosterno, pedibus anterioribus, femoribusque



posticis apice flavo-testaceis. Long. '6. Femina elytris haud sulcatis. San Diego minus frequens. A. fraterno similimus sed elytris feminae simplicibus valde distinctus.

2. *laticinctus*, fere ellipticus, minus convexus, ferrugineus, supra nigro-piceus nitidus, thorace latitudine triplo brevior, lateribus late fasciaque transversa angusta luteis, elytris margine lato nigro irrorato, fascia subbasali (saepius interrupta) apiceque luteis, ore, epistomate, macula verticali transversa, pedibusque anterioribus flavo-testaceis. Long. '45. Femina, thoracis lateribus rugosis, elytris versus basin striolis approximatis strigosis. Ad flumen Colorado, et Vallecitas, frequens. A. incisio similis.

COLYMBETES Clairville.

1. *strigatus*, valde elongatus, subtus nigro-piceus, capite piceo, epistomate, ore, maculaque verticali transversa rufo-piceis, thorace luteo, fascia lata margineque postice piceis, elytris olivaceo-piceis, versus marginem indeterminate luteis, striolis transversis subtilibus strigatis, seriebus 3 punctorum distinctis, tibiis anticis ferrugineis. Long. '63. Speciebus aliis striis subtilioribus distinctus. San Diego, rarissime.

ILYBIUS Er.]

1. *regularis*, ellipticus convexus, postice declivis, supra nigro-aeneus, subtilissime reticulatus, thorace latitudine triplo brevior, lateribus subrotundatis, indeterminate ferrugineis, elytris postice regulariter rotundatis, punctis solitis vix distinctis, striola parva utrinque pone medium pallida, epistomate, ore, epipleuris pedibusque obscure rufo-piceis. Long. '5. San Diego.

AGABUS Leach.

1. *lugens*, ellipticus, paulo convexus nigro-aeneus,

subtilissime reticulatus, thorace latitudine triplo brevior, lateribus subrotundatis, tenuiter marginatis, elytris punctorum lineis solitis distinctis versus apicem confusis, postice regulariter rotundato-attenuatis, antennis piceis. Long. .38. San Diego, et Colorado, minus frequens.

2. *semivittatus*, ovalis, postice subacutus, convexus, nigro-æneus, nitidus, capite picescente, thorace latitudine plus duplo brevior, lateribus rotundatis, tenuiter marginatis, elytris punctis solitis distinctis, ad apicem confusis, vitta submarginali pone medium pallida, pedibus antennisque rufo-piceis. Long. .32. Colorado.

3. *discolor*, elliptico-ovalis, postice acutus, subtus niger; capite rufo-bimaclato thoraceque ænescentibus, hoc latitudine triplo brevior, lateribus tenuiter marginatis testaceis, paulo rotundatis, elytris obscure luteis, punctis solitis subtilibus; labro, antennis, tibiis tarsisque ferrugineis. Long. .3. ♂ nitidus, thorace subtilissime reticulato, elytris parce obsolete punctulatis. ♀ opaca, thorace, elytrisque minus subtiliter reticulatis. San Francisco, et Vallecitas.

4. *morosus*, ovalis, pone medium paulo latior, apice rotundato-acutus, nigro-æneus, modice convexus, subtiliter reticulatus, thorace latitudine triplo brevior, lateribus rotundatis, subtilius marginatis, angulis posticis subrotundatis, cum elytris angulo obtusissimo formante, his punctis solitis subconfusis, margine postice lutescente, antennis, tibiis tarsisque rufo-piceis. Long. .29. Specimen unicum ad San Francisco inventum.

#### COPTOTOMUS Say.

1. *difficilis*, elongatus, utrinque attenuatus, rufus subtilissime aciculatus, thorace latitudine plus triplo brevior, lateribus rectis, apice et basi media nigricante, elytris pallidis, sutura nigra, maculis latis discoidalibus, fuscis, margine

postice rufescente. Long. 28. Specimen unicum ad Colorado.\*

LACCOPHILUS Leach.

1. *decipiens*, testaceus, ovalis, nitidus, elytris nigro irroratis, sutura antice, macula parva communi pone medium, margine usque ad medium, macula ad medium duabusque posticis pallidis, pone medium oblique attenuatis, apice magis oblique subtruncatis. Long. 29. In California, et in Territorio Oregonensi abundat. L. americano simillimus, at elytris aliter attenuatis differt.

HYDROPHORUS Clairville.

† *Epistoma marginatum*.

1. *hydropicus*, ovalis, convexus, latitudine duplo longior, postice acutus, confertim punctatus, piceus, thorace rufo, marginibus omnibus piceis, lateribus rectis, cum elytris angulum obtusum (lateraliter visum) formante; his punctis parvis interiectis, margine rufescente; subtus grosse punctatis. Long. 12. H. in æquali minus inflatus; San Diego: mas nitidus, femina opaca.

2. *latissimus*, sub-rotundatus, minus convexus, latitudine haud longior, utrinque attenuatus, testaceus, nitidus, punctatus, capite postice, thoracis apice et basi nigricantibus, hoc basi utrinque impresso, plicaque brevissima instructo; elytris macula communi suturali integra lata, versus apicem dilatata, alteraque utrinque ad medium submarginali nigris. Long. 08. San Diego, minus frequens.

\* Speciem alteram adiungo.

*C. longulus*, elongatus, antice obtusus postice sensim valde attenuatus, rufus subtilissime punctulatus, thorace brevissimo, lateribus rotundatis, apice et basi medio nigricante, elytris crebre nigro irroratis, margine lato pallido, striga nigra notato. Long. 31. Specimen unicum masculinum ad Laramie (Territorio Missouriensi) inventum.

†† *Epistoma haud marginatum*.

a. Thorax et elytra striola basali utrinque notata.

3. *obs curellus*, oblongus, postice subacutus, piceus, punctatus, nitidus, capite fere lævi, thorace lateribus late testaceis rotundatis, tenuiter marginatis, cum elytris angulum obtusum formantibus, striola basali profunda: elytris versus latera indeterminate testaceis, fusco nebulosis. Long. .07. San Jose et flumen Colorado.

4. *macularis*, oblongo-elongatus, postice subacutus, testaceus, punctatus nitidus, capite fere lævi, thorace medio infuscato, lateribus rotundatis, tenuiter marginatis, elytris fere angustiore cum eis angulum formante, striola basali tenuiore, elytris striolis 2 vel 3, macula utrinque basali, alteraque postica submarginali nigris. Long. .06. Colorado et Gila. Precedentem valde refert, et forsitan varietas revera haberi debet, at forma paulo angustiore, et magis parallela, corporeque toto pallide testaceo differre videtur.

5. *subtilis*, oblongus, postice subacutus, piceus, subtiliter punctatus, nitidus, capite parce punctulato, thorace antrorsum angustato, rufo, antice posticeque nigricante, lateribus paulo rotundatis, tenuissime marginatis, cum elytris angulum vix formantibus, striola basali profunda; elytris macula quadrata pone humerum, alteraque marginali pone medium rufis, stria suturali distincta. Long. .06. Specimen unicum ad Sta Isabel.

6. *cinctellus*, oblongus, postice subacutus, piceus, punctatus, capite vix punctato, thorace rufo, postice late nigricante, antrorsum subangustato, lateribus rotundatis, tenuissime marginatis cum elytris angulum obtusum formantibus; striola basali profunda; elytris fascia transversa pone basin, sæpe interrupta, strigaeque submarginali hamata versus apicem pallidis, stria suturali, alteraque discoidali vix distinctis. Long. .07. Ad flumen Gila. Mas nitidus: femina opaca.

7. *a m a n d u s*, oblongus, magis parallelus, piceus, subtiliter punctatus, nitidus, capite parce punctulato, thorace testaceo medio infuscato, antrorsum vix angustato, lateribus paulo rotundatis, tenuissime marginatis, angulum cum elytris formantibus, striola basali profunda: elytris fascia pone basin integra, striga subapicali hamata, striolis brevibus duabus pone medium, margineque tenui pallidis. Long. .06. Specimen unicum in flumine Gila. Præcedenti similis, at minor, punctura subtiliore, thorace magis parallelo, angulum cum elytris magis distinctum formante, his stria suturali nulla, diversus.

b. Thorax et elytra striola basali nulla.

8. *striatellus*, latiusculus, ovalis paulo convexus, nigro-piceus, confertissime punctatus, brevissime pubescens thorace elytris paulo angustiore, lateribus valde rotundatis tenuiter marginatis, angulis posticis obtusis, rotundatis, elytris, striis utrinque 4 profundis, fascia sub-basali, maculisque 1 vel 2 in marginalibus obscure testaceis; capitis macula transversa, antennarum basi pedibusque ferrugineis. Long. .17. San Francisco et San Diego.

9. *fortis*, elongato-ovalis postice acutus, convexus ater subtilissime alutaceus, subtiliter dense pubescens, capite punctulato, thorace basi utrinque profundius bisinuato, lateribus rotundatis, angulis posticis rectis, cum elytris (lateraliter visum) angulum vix distinctum formante; antennarum basi, epistomate pedibusque rufo-piceis. Long. .26. San Diego, minus frequens. Mas thorace nitidusculo subtiliter punctulato.

10. *humeralis*, oblongo-ovalis, postice subacutus, ater, opacus, subtilissime alutaceus, subtiliter dense pubescens, capite levi, thorace basi utrinque profundius bisinuato, lateribus rotundatis, angulis posticis rectis, cum elytris (lateraliter visum) angulum obtusum formante, his macula parva

humerali testacea; macula capitis verticali, antennarum basi, pedibusque rufo-piceis. Colorado. Mas thorace subtiliter punctulato, nitidiusculo distinctus. Long. 20.

11. *subpubescens*, elongato-ovalis, postice subacutus, nigro-piceus nitidus, punctulatus parce subtiliter pubescens, thorace lateribus rufescentibus subrotundatis tenuiter marginatis, cum elytris angulum (lateraliter visum) obtusum formantibus, his versus latera indeterminate rufo-piceis, stria suturali minus profunda, antennarum basi pedibusque rufo-piceis. Long. 20. Specimen unicum, ad San Francisco inventum.

12. *hirtellus*, oblongo-ovalis, postice subacutus, nigro-piceus, minus nitidus, confertim punctulatus, dense subtiliter pubescens, thorace lateribus vix rotundatis tenuiter marginatis, cum elytris (lateraliter visis) angulum haud formante, his versus latera indeterminate piceo-testaceis, stria suturali vix distincta, antennarum basi, pedibusque rufo-piceis. Long. 16. Specimen unicum ad San Francisco.

13. *vilis*, elongato-ovalis, paulo convexus, postice magis attenuatus, piceus nitidus minus dense subtiliter punctulatus, thorace elytris vix angustiore, lateribus vix rotundatis, tenuiter marginatis, cum elytris angulum haud formantibus, his lutescentibus striis 3 punctorum maiorum vix distinctis, antennis pedibusque rufis. Long. 10. San Jose et San Diego.

14. *latebrosus*, ovalis, convexiusculus, postice magis attenuatus, minus dense punctatus, piceus nitidus, thorace lateribus vix rotundatis, tenuiter marginatis, cum elytris angulum haud formantibus, his ad medium thorace latioribus, lutescentibus, antennis pedibusque rufis. Long. 15. San Diego.

15. *lutescens*, elongato-ovalis, utrinque aequaliter attenuatus, nigro-piceus, supra luteo-testaceus, nitidus, confertim subtiliter punctatus, capite infuscato, thorace lateribus

vix rotundatis, tenuiter marginatis, medio infuscato, cum elytris angulum (lateraliter visum) obtusum formantibus, his medio thorace paulo latioribus, late infuscatiss, sutura marginique luteis, antennis pedibusque testaceis. Long. .15. San Francisco, et San Jose: sequentibus duobus angustior.

16. *medialis*, ovalis, convexiusculus, utrinque æqualiter attenuatus, nigro-piceus, supra luteo-testaceus, confertim punctulatus, nitidus, thorace medio, et basi infuscato, lateribus paulo rotundatis, tenuissime marginatis cum elytris angulum obtusum formantibus, his late infuscatiss (præcipue pone medium) thorace latioribus: antennis pedibusque testaceis, capite utrinque infuscato. Long. .15. San Diego, sat frequens; mas nitidior.

17. *fraternus*, ovalis, convexiusculus, postice magis attenuatus, nigro-piceus, supra luteo-testaceus nitidus, confertim punctulatus, thorace lateribus paulo rotundatis, vix marginatis, cum elytris angulum obtusum formantibus, his disco præcipue postice fusco-maculato, ad medium thorace vix latioribus, antennis pedibusque testaceis, occipite infuscato. Long. .15. Ad flumen Novum in deserta Colorado: mas nitidior: præcedenti simillimus.

GYRINUS Lin.

1. *plicifer*, ovatus, valde convexus, niger, ænesceus nitidissimus, vix æneo-limbatus, elytris seriebus punctorum internis subtilioribus, interstitiis planis, lævibus, angulo interno apicali vix rotundato, externo late rotundato, plica obliqua incrassato; thoracis margine inflexo, epipleuris, pedibusque testaceis, abdomine rufescente. Long. .20. Specimen unicum, San Diego, sequenti multo convexior.

2. *consobrinus*, ovatus, convexus, niger nitidissimus, æneo-limbatus, thorace latitudine plus triplo brevior, impressione transversa profunda, elytris seriebus punctorum

internis subtilioribus, interstitiis planis lævibus, angulis apicalibus sub-rotundatis, thoracis margine inflexo, epipleuris, pedibus anoque testaceis. Long. .21. San Francisco et San Jose; *G. limbato* simillimus, at thorace latiore, corporeque postice magis angustato, necnon impressione thoracis profunda differt: plica ad angulum apicale externum elytrorum vix distincta.

#### GYRETES Brullè.

1. *sinuatus*, elongato-ovalis, valde convexus, nigro-æneus nitidissimus, parce obsolete punctulatus, thoracis elytrorumque marginibus punctatis, cinereo sericeis, his apice valde oblique subsinuatis truncatis, angulo externo obtuso, subtus ferrugineus. Long. .20. Ad flumen Colorado. Femina tarsis simplicibus, anguloque externo elytrorum apicali paulo minus distincto differt.

#### HYDROPHILIDÆ.

##### HELOPHORUS Ill. Fabr.

1. *obscurus*. elongatus nigro-piceus, nitidus, thorace scabro, lineis 5 solitis profundis, intermediis sinuatis, ad medium utrinque callo vix elevato lævi notato; elytris striis profundis fortiter punctatis, interstitiis convexis, pone basin oblique impressis. Long. .15. San Francisco, minus frequens.

##### OCHTHEBIUS Leach.

1. *puncticollis*, ellipticus nigro-piceus, thorace lateribus maxime rotundatis, 5-lineato, lineis externis magnis, intermediis subsinuatis, elytris convexiusculis fortiter striato-punctatis. Long. .07. Ad flumen Gila.

2. *interruptus*, longiusculus æneo-testaceus, thorace transverso subquadrato, lateribus rotundatis, marginatis, disco vage punctato antice transversim impresso, 5-lineato,



ineis externis obliquis, intermediis interruptis, elytris fortiter striato-punctatis. Long. .05. San Diego, frequens.

3. *lineatus*, elongatus, capite thoraceque æneis, hoc ubiquadrato, lateribus subrotundatis, marginatis, disco aluaceo, transversim biimpresso, 5-lineato, linea media obsoleta, externis obliquis, intermediis vix sinuatis, elytris subtilius striato-punctatis. Long. .05. Colorado.

*HYDROCHUS* Germ.

1. *variolatus*, elongatus, cinereo-æneus, thorace quadrato, angulis acutis, grosse punctato, profunde 5-foveato, elytris fortiter striato-punctatis, interstitiis striis angustioribus, 2<sup>da</sup> paulo carinato, maculis pluribus utrinque parvis nigra. Long. .11. San Diego.

2. *vagus*, elongatus, cinereo-æneus, thorace quadrato, angulis acutis grosse punctato, vage 5-foveato, elytris fortiter striato-punctatis, interstitiis striis æqualibus. Long. .09. Colorado.

*BEROSUS* Leach.

1. *punctatissimus*, ovatus, convexus, supra luridus opacus, punctatissimus, capite thoracisque vittis tribus (intermedia duplicata) cuprascentibus, elytris thorace plus duplo latioribus fusco nebulosis, striis punctulatis postice profundius punctatis. Long. .30. San Diego, ad Missionem.

2. *punctulatus*, supra pallide testaceus oblongo-ovalis convexus, capite confertim punctato æneo, thorace bivittato elytris thorace vix sesqui latioribus, striis parce punctulatis, interstitiis planis vage punctulatis, nigro-guttatis. Long. .20. Ad flumen Colorado.

3. *exilis*, oblongo-ovalis convexus, supra luridus, capite thoraceque confertim punctatis, æneis, hoc margine antico lateribusque pallidis, elytris parce nigro guttatis, grosse striato-punctatis, interstitiis uniseriatim punctulatis. Long. .08. Ad flumen Gila.

*no Species of Californian Coleoptera.*

## CLERIDÆ.

REHABILITATION.

igni, convexi, vix emarginati; labrum apice palpi maxillares elongati, articulo ultimo valde sales breves, vix dilatati; antennæ elongatæ, ser- ra. . . . . tenues, articulis 4 primis subæqualibus, breviter appendiculatis ultimo longiore, unguiculis acutis, subtus ap- pendice vix brevior obtuso acutis. Corpus molle, pilosum, thorace valde transverso, . . . . . o, marginato.

1. *testaceus*, pilosus, thorace latitatis, tenuiter marginatus, Long. .25. Specimen unicum, ad Colorado.

C Hope.

1. *fuscula*, eloi a supra fusca, nitida subtiliter punctulata, thorace , medium lateribus constricto, disco æquali convexo, elytris parallelis, thorace duplo latioribus punctis quadratis seriatis, ad medium obsoletis, fascia transversa pallida indeterminata ad medium signatis, antennis articulis 2—4 subæqualibus. Long. .22. Colorado.

2. punctata, valde elongata, fusca, longius pilosa, thorace utrinque constricto, confertim punctato, elytris postice paulo latioribus, punctis quadratis seriatis, ad apicem obsolete, fascia extus dilatata ad medium pallida, abdomine pedibusque testaceis, antennis articulis 2—4 æqualibus, reliquis vix brevioribus. Long. .3. Colorado.

**CLERUS Fabr.**

1. *rufescens*, rufus, dense cinereo-pubescent, thorax modice convexo subtiliter dense punctulato nitido, elytris confertim punctatis, obscuris basi rufis, fascia lata ad medium, alteraque ante apicem pallidis. Long. .33. Colorado. *C. ichneumonio* similis.

HYDROCERA Nm.

1. *soabra*, nigro-ænescent, pilis argenteis densis vestita, capite thoraceque confertim rugosis, hoc breviusculo, lateribus rotundatim tuberculato, elytris abdomine vix brevioribus, confertim rugose-punctatis, fascia late ad medium, humerisque minus pubescentibus. Long. .16. San Diego. *H. subæneæ* similis.

2. *discoidea*, atra, dense cinereo-pubescent, thorace confertim rugose punctato, breviusculo, postice angustato, utrinque constricto, lateribus rotundatim tuberculatis, elytris confertim grosse punctatis, macula utrinque magna basali are communi alteraque pone medium flavis. Long. .10—.15. Colorado. In Larream mexicanam.

3. *bicolor*, ater, cinereo-pubescent, thorace parce rugose punctato, lateribus late rotundatis, postice subangustato, antice constricto, elytris parce punctatis flavis, apice nigris, pedibus flavis. Long. .1. Colorado.

ACREPIS.

*Palpi articulo ultimo ovali, labiales brevissimi: oculi prominuli, antice vix emarginati; labrum parvum deflexum vix conspicuum; antennæ breviusculæ, 10-articulatæ, articulis 7—10 majoribus, discretis, vix compressis, acetabula antica hientia; tarsi omnes 4-articulati, filiformes, non appendiculati, unguibus simplicibus.*

1. *maculata*, piceo-ænea, nitida, cinereo-villosa, capite thoraceque sub-globoso postice angustato, truncato et marginato dense punctatis, elytris parallelis cylindricis thorace non latioribus rugose-punctatis, sutura margine externa, maculisque utrinque tribus albidis. Long. .34. San Francisco, specimen unicum: macula prima humeralis, secunda discoidealis ad medium, tertia angusta lunata versus apicem.

## ENOPLIUM Latr.

1. *fasciatum*, æneo-piceum nitidum parce pilosum thorace confertissime punctato, utrinque angustato, lateribus medio dilatatis, elytris punctis quadratis seriatis ad apicem obsoletis, fascia curvata pallida ante medium ornatis. Long. .26. San Diego. Ad divisionem *Pelonium* Spin. pertinet.

## PSELAPHIDÆ.

## CTENISTES Reich.

1. *pulvereus*, elongatus depressus rufus, parce flavo-pubescent, capite subreticulato fronte canaliculata, postice profunde bifoveata, foveis discretis occipite elevato, thorace lateribus subrotundato, basi foveato, elytris stria dorsali tenui, palpis articulis valde transversis, ultimo apice rotundato. Long. .10. San Jose, cum Formica parva picea pedibus testaceis frequens: sexus differentia me fugit. C. Zimmermani maior, capite foveis posticis minoribus, palporum articulis minus rotundatis, extus magis prolongatis.

## TYCHUS Leach.

1. *puberulus*, piceus, valde pubescens, fronte divisa, transversimque impressa, capite lævi, thorace globoso, lateribus subangulato, elytris pedibusque rufis. Long. .08. San Jose: cum formicis. T. longipalpi Lec. æqualis, palporum autem articulo penultimo intus rotundato, appendice nullo, ad Tychos Europæos potius spectat.

2. *tenuellus*, piceus, abdomine pubescente, fronte subdivisa, minus profunde transversim impressa, capite lævissimo, thorace globoso, postice distinctius foveato, elytris pedibusque rufis. Long. .06. San Jose sub quisquiliis; palporum structura præcedenti similis, licet articulo ultimo minus compresso.

**BRYAXIS Leach.**

1. *comparr*, picea, convexa, subtiliter pubescens, capite punctulato, bifoveato, punctoque frontali notato, thorace globoso, subtilissime punctulato, in disco trifoveato, fovea intermedia minima. Long. .05. *B. puncticolli* Lec. (Bost. Journ. '6, 87.) similis, capite punctato, fovea antica fere nulla distincta. San Jose, mas abdomine subtus impresso.

2. *subtilis*, rufa, convexa, parce pubescens, capite trifoveato, thorace lateribus subangulatis, foveis lateralibus parvis, intermedia minima, elytris stria tenui ad medium obsoleta. Long. .05. Specimen unicum ad Gilam masculinum, articulo antennarum 5<sup>o</sup> paulo maiore.

3. *foveata*, saturate rufa, convexa, parce pubescens, capite trifoveato, thorace globoso, in disco foveis tribus magnis impresso, elytris stria dorsali tenui ad medium obsoleta. Long. .05. Ad Gilam : mas, antennarum articulo 5<sup>o</sup> paulo majore distinctus.

**FARONUS Aube.**

1. *Isabellæ*, elongatus depressus, piceus, fronte canaliculata, vertice bipunctato, thorace rotundato, postice truncato, ad angulos foveato, ante basin transversim profunde excavato, elytris rufo-testaceis, obsolete punctulatis, basi bistriatis, stria interna brevissima ; antennis pedibusque pallidis. Long. .06. Specimen unicum. Sta Isabel. *F. Tolutulæ* Lec. minor, striisque brevibus distinctus.

**STAPHYLINIDÆ.**

**THINOPINUS.**

*Antennæ rectæ ; palpi maxillares filiformes ; maxillæ malleæ exteriore elongata : ligula apice emarginata : coxæ intermedia contigua : tarsi posteriores non depressi : elytra brevissima sutura imperfecta, imbricata.*

Inter Staphylinos genuinos propter corpus apterum, elytra valde abbreviata, rotundata, suturamque imperfectam genus maxime admirandum. Habitus fere Staphylini, at abdomine latiore, oculisque minoribus; discedit autem labro brevissimo, latissimo, late emarginato, longissime ciliato; tibiis intermediis brevibus crassis, anticis compressis, triangulariter dilatis fossoriis, omnibus confertim spinulosis.

1. *pictus*, testaceus, vel pallidus, capite thoraceque nitidissimis, fascia interoculari ad latera postice flexa ochroleuca, thorace postice subangustato, macula utrinque maxime annulari nigra, elytris obsolete strigosis annulo lato nigro ad humerum interrupto utrinque signatis, thorace duplo brevioribus, abdomine supra bifariam nigro signato. Long. .55.—.75. Ad oceani littora æstu humida circa San Diego, Junio minus frequens: victus marinus.

#### ADDENDA.

##### CANTHARIS.

p. 160. *moerens*, atra opaca, elongata, capite parce punctato, subcanaliculato, gutta verticillii rufa, thorace parce punctato, canaliculato, subquadrato, postice leviter angustato, elytris subtiliter, scabris. Long. .7. Sacramento, Rathvon.

*C. tenebræ* affinis, longior, elytris confertim, distinctius scabris.

p. 132. *Eusattus dubius*, pro ‘tibiis anticis intus basi serrulatis,’ lege “tibiis anticis extus ad basin serrulatis.”

p. 166. *Saprinus interceptus* epipleuris tristriatis gaudet, et in divisione cum *S. rotundato* Europæ ponendus: divisio pronima (c.) *S. discoidalem* et *alienum* includens epipleuras tristriatas habet.

*Description of a new Species of SYLVICOLA.* By S. F. BAIRD.

Read January 12th, 1852.

SYLVICOLA KIRTLANDII, Baird. ♂.

Plate VI.

Above ashy blue and gray, streaked with black, as in *S. coronata*. No yellow on the crown or rump. Beneath yellow, streaked with black across the breast and on the sides. Lores black; eyelids white.  $5\frac{1}{2}$ ,  $8\frac{7}{8}$ ,  $2\frac{10}{12}$ .

The species to which this approaches most closely is the *S. coronata*, which it resembles in size and the coloration of the upper parts. It is, however, without the conspicuous yellow rump and crown, and is nearly uniform yellow beneath. It has not the yellowish olive of the supposed *S. parus*, Wils; nor the yellow frontlet of *Myiodiactes bonapartii*, Aud.

The single specimen procured is not quite matured, although dissection showed it to be a male. The dull winter brown of the upper parts is giving way to an ash gray, most distinct on the crown. The central lineation of black in the feathers of the crown is not so extensive as in *S. coronata*. Hinder back and rump uniform dull ash, probably to be replaced by the brighter color of the crown. Beneath yellow: the black spots across the breasts and along the sides of the body are sparse and small. Lower tail coverts yellowish white. A narrow frontlet and the lores black, this color strongly tinging the cheeks. Eyelids white, as is also a small spot at the posterior corner of the orbit. Bill and feet considerably larger and stouter than in *S. coronata*. Primary and secondary wing coverts margined and tipped with inconspicuous dull white. Two outer tail feathers spotted on

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the inner web. The outer edges of all, delicately margined with dull white.

3d quill longest, then, in succession, 2d, 4th, 5th and 6th. Length  $5\frac{1}{2}$ ; extent  $8\frac{7}{8}$ ; wing from carpal joint  $21\frac{1}{2}$ ; bill along ridge  $\frac{47}{8}$ , riotus  $\frac{38}{8}$ ; tarsus  $\frac{45}{8}$ ; hind toe and claw  $\frac{19}{8}$ ; middle do.  $\frac{25}{8}$ .

This species, which was shot near Cleveland, Ohio, by Mr. Charles Pease, May 13th, 1851, is appropriately dedicated to Dr. Jared P. Kirtland, of Cleveland, a gentleman to whom, more than any one living, we are indebted for a knowledge of the Natural History of the Mississippi Valley.

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*Descriptions of Two New Species of Fresh Water Shells.*

By TEMPLE PRIME, Corresponding Member. Read 30th January, 1852.

CYCLAS SECURIS. Plate VI.

C. testâ, parva, rhomboideâ, postice abruptissima, subequilaterali; natibus elevatissimis; dentibus cardinalibus minutis, lateralibus elongatis, fortibus.

Long. 0.27; Lat. 0.24; Diam. 0.16.

Shell small, rhomboid, posteriorly very abrupt, somewhat equilateral, striations hardly visible, color light, pale yellow; beaks very prominent. Hab. Massachusetts.

This is one of our best distinguished and most attractive species: it somewhat resembles the *Cyclas truncata* of Linsley, but is much more compressed, and is less acute. One of its best marks is the contrast of the roundness of its anterior with the abruptness of its posterior. When the animal is alive, this shell assumes a bright pink color; and its beaks are of a dark brown; it, however, loses these peculiarities when the animal is dried up.



*Description of a New Species of Fuligula.* 219

Found in running streams, living with the *Cyclas truncata* and *Pisidium dubium*.

PISIDIUM COMPRESSUM. Plate VI.

*P. testâ minutâ, compressâ, perobliquâ, triangularis, posice abruptâ, albâ, nitidâ, tenuiter striatâ, natibus parvis piculatis.*

Long. 0.16; Lat. 0.14; Diam. 0.9.

Shell small, somewhat oblique, compressed, triangular, anteriorly abrupt, slightly striated, epidermis very light, color pale yellow, beaks small, slightly elevated, depressed at the summit. Hab. Massachusetts.

This species somewhat resembles the young of the *Pisidium dubium*, but is somewhat more compressed, and its beaks are likewise less elevated.

Found in company with the *Pisidium dubium* and the *Cyclas minor*.

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*Description of a New Species of the genus FULIGULA.*

By JOHN G. BELL. Read 30th Aug. 1851.

VIOLET, DUCK—*Fuligula viola*.

*Specific Characters.*—Length 30 inches; extent 43 inches. Bill dull yellow, black at tip and base; head and neck violet, changeable to glossy green; irrides hazel. Foreneck and breast dark chesnut; back, rump and upper tail coverts, metallic green; wings brown, slightly glossed with dull green; primaries tipped with violet; tail light sooty brown, shaded with violet, except the four centre feathers, which are shaded with green; greater wing coverts, light ash; smaller under wing coverts, brownish ash, barred and largely tipped with white; axillars dark ash, minutely spotted and tipped with

white; abdomen ash grey, spotted with brown and light rufous; sides dark brown, finely waved with light rufous and ash. Speculum deep glossy green, edged with white;—greater wing coverts, narrowly edged with white; under tail coverts dark chestnut brown, conspicuously shaded with green: legs dull yellow.

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*Ornithological Notes.* By GEO. N. LAWRENCE. Read April 24th, 1852.

1. *Buteo Harlani* Aud. I have received a fine specimen of this very rare species of Hawk from California, where it was procured by Mr. E. S. Holden. It agrees with the figure and description given by its discoverer, Mr. Audubon in the octavo edition of the Birds of America. Vol. 1, p. 6.

2. *Procellaria meridionalis*, Lawrence. A specimen of this recent species was shot in the bay at Quogue, Long Island, after a severe storm in July, 1850.

3. *Philomachus pugnax* (Linn). I had an opportunity not long since of inspecting a young male Ruff, which was killed on Long Island in October last; it was evidently a bird of that season, and must, therefore, have been bred in this country. I have an adult male in mature plumage which was obtained on Long Island in the summer of 1845. Dr. De Kay gives the figure of a female in the Natural History of the State of New-York. This was supposed to have been brought from Europe, and to have escaped from confinement; but two others having since been obtained, and one of them a young bird, would seem to warrant the belief that they are now resident here, and entitled to a place in our list of birds.

4. *Pterocyanea cæruleata* (Licht). (*Anas Rafflesii* King).

I have in my collection a male specimen of this Duck, procured in California, from whence several have recently been sent. The first instance of its being found within our limits, that has come to my knowledge, is recorded in the Proceedings of the Academy of Natural Sciences, Philadelphia. This one was obtained in Louisiana by Dr. J. Pilatè, and presented to the Academy. I have added a short description, which I think should always be done in noticing additions to our Fauna, as many of them are described in European works not at all times accessible to the general reader.

The male has the crown brownish black ; sides of the head, neck, breast and sides deep chesnut red ; abdomen brown ; the feathers of the upper part of the back are brown, margined and waved with chesnut ; lower part of the back and tail brown, the latter edged with light ash ; lesser wing coverts light blue ; greater blackish brown at their bases, and white at their ends, forming a white band between the blue coverts and the speculum, which is glossy green ; primaries and secondaries umber brown ; the tertiaries have their shafts white, are black on the outer webs, and brown on the inner ; shorter scapularies dark brown, margined with chesnut ; some of the longer ones are pale blue, others greenish black, marked with white along their shafts ; inner lining of wings and axillars pure white ; under tail coverts black ; bill black ; legs and feet yellow.

Length of the skin 16 inches, wing from flexure  $7\frac{1}{4}$  inches, bill above 2 inches, tarsus  $1\frac{1}{4}$  inches.

5. *Turdus nævius* Gmelin. A varied Thrush was obtained in the vicinity of New-York in December of last year, as they are seldom found east of the Rooky Mountains, the distance it wandered from its usual localities is remarkable, having crossed almost the entire breadth of this continent.

This species was first found by Captain Cook on his third

voyage, at Nootka Sound; it is abundant in Oregon and California.

Dr. Richardson figures one in the Fauna Bor. Amer. which was obtained at Fort Franklin in lat.  $65\frac{1}{2}^{\circ}$ ; he did not observe it on the Saskatchewan River, and remarks: "it most probably does not go far to the eastward of the Rocky Mountains in its migrations North and South."

One other instance of its being found here, was noticed a year or two since by Dr. Samuel Cabot, in the Journal of the Boston Society of Natural History.

6. *Strobilophaga enucleator* (Linn). Large numbers of Pine Finches have appeared this winter near our city, as well as in different parts of the State, having left the North, where they usually remain throughout the year. Numerous flocks have also been observed in Massachusetts, New Jersey, and Pennsylvania.

7. *Sterna Forsteri* Nutt. I have a Tern from California which agrees very closely with the one obtained by Dr. Richardson on the Saskatchewan, and described in the Fauna Bor. Amer. as "*Sterna hirundo*." In a note, he remarks as follows:—

"English specimens of *Sterna hirundo* differ from the above in the outer web of the exterior tail-feather, being blackish-grey; the inner webs of all the tail feathers, and the whole of their coverts, white. The blackish gray of the quills is more extended. The tarsus is more slender, and two lines shorter than in the American bird. Further observation must determine whether these differences are constant. They exist in several specimens from both countries which I have examined, and the peculiarities of the Hudson's Bay bird attracted the attention of Forster."

Mr. Nuttall in his "Ornithology," vol. ii. p. 274, under *Sterna hirundo* has the following note:—

"This bird, agreeing with the European species, appears

distinct from that of Richardson, in which the tail and its coverts are pearl-grey, the outer feather white exteriorly, and the tarsus 2 lines longer. If this should prove to be a distinct species, which is more than probable, we would distinguish it by the name of *Sterna Forsteri*, from the eminent naturalist and voyager who first suggested these distinctions."

That this is a distinct species from *Sterna hirundo* Linn., I have no hesitation in deciding, and have accordingly adopted the name proposed by Nuttall for Dr. Richardson's bird. I would, however, state, that as Forster's description differs in some particulars from Dr. Richardson's, I think it by no means conclusive that they refer to the same species.

8. *Sylvia autumnalis* Wils. Several writers describe this as the young of the Hemlock Warbler, (*S. parus* Wils.), a specimen of which I have never seen. The *S. autumnalis* is observed in great numbers in the autumn. Wilson met with more than a hundred in one afternoon; and Mr. Nuttall in placing it as the young of *S. parus*, remarks: "Nothing is more remarkable than the rarity of the adult and the abundance of the young birds."

There would seem, therefore, but slight grounds for supposing it the young of *S. parus*, which I have never believed it to be, but have always considered it the young of quite an abundant species, viz., *Sylvicola striata*; a comparison with the female of this species, I think, will remove all doubt.

9. *Toxostoma curvirostris* (Swainson.) I have received several specimens of this fine Mocking-bird from Texas. In the proceedings of the Acad. of Nat. Sci. Vol. iv. p. 63, Col. Geo. A. McCall describes it and gives an account of its habits, from observations made at Matamoros, Mexico.

I consider *Pomatorhinus turdinus* Temm. and *T. vetula* Wagler, identical with this species.

*Descriptions of New Species of MARGINELLA, with Notes on  
Sundry Species of MARGINELLA and CYPREÆ. By JOHN H.  
REDFIELD. Read May 24th, 1852.*

*MARGINELLA vexillum.*

Testa ovata, straminea, fasciis inæqualis purpureo-fusci: albo coninè catenatis ornata: anfractibus 4—5, spirâ mediocri, conicâ; labio crasso, purpureo-punctato, intus denticulato; columellâ albo callosâ, 4-plicatâ; aperturâ angustâ.

DESCRIPTION.—Shell ovate, composed of 4 to 5 whorls, with a moderately conical spire. The ground-work of the coloring is yellowish white, which is crossed at irregular intervals by unequal bands of purplish brown, (the example before us displaying six of them.) On close examination these bands are found to be composed of an exquisite chain work, consisting of transverse alternating white and brown lines, the lighter ones being regularly interrupted by darker longitudinal lines. In the upper band the transverse chain work is less apparent, and vertical lines are more predominant. Beside the transverse bands which form the most conspicuous markings of the shell, the example before us exhibits traces of vertical highly undulating lines of yellow, arranged in flames or patches, of which 7 or 8 may be seen on the body whorl. Probably this is more apparent when the enamel is in perfect condition: The outer lip is much thickened, covered with brown dots, and denticulate within. The columellar margin is covered with a white callosity, and has four plaits. Aperture rather narrow.

Length, 0.71 inch, (19 millim.) Breadth, 0.41 inch, (11 millim.)

*Habitat.*—Cape Palmas, West Africa.

*Remarks.*—The only example known to me of this elegant

species, belongs to the collection of Geo. A. Perkins, M.D., now of Salem, Mass., formerly missionary at C. Palmas, by whose kindness I have been permitted to describe it. Although in tolerably good condition, it has probably lost the original brightness of its enamel. In size and form it closely approaches *M. Belcheri Hinds*, and even in the style of marking, it somewhat resembles some varieties of that species, but is at once distinguished by its greatly thickened, denticulate and dotted lip. In its thickened lip and ventral callosity it is allied to *M. Petitii Duval*, but is much smaller, and quite differently marked.

*MARGINELLA amabilis.*

*M. carnea* (in part) Sowb. Thes. Conch., p. 398, pl. 76, f. 102, 114, (not of Storer.)

In Annals of Lyc. Nat. Hist., vol. 4, p. 495, I expressed a doubt whether the figures above cited were truly referable to *M. carnea* Storer. I have since become convinced that they are not. Fig. 103 of the same plate in the Thesaurus truly represents Storer's shell, but Sowerby erroneously regarded that figure as a variety, and not as the typical form, and hence his description, which is well worded, applies not to the true *M. carnea*, but to the form which we now separate under the above name. The *M. amabilis* is larger and more elongate than *M. carnea*, and the rich flesh-colored tinge which the back of the shell exhibits, is arranged in three bands in the former, while in the latter only two are evident. The junction of the spire and lip is less shouldered in *M. amabilis*, and the lip is usually marked by two brown spots. In short, it is as closely related on the one hand to *M. oblonga Swains.* as it is to *M. carnea* Storer, on the other, and has near affinities also to *M. guttata Dill.*

Length, 0.75 inch, (20 millim.) Breadth, 0.46 inch, (12

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millim.) A very old worn example measured 25 millim. long, and 14. millim. broad.

*Habitat.*—It is said to be brought from the coast of Yucatan. *M. carnea* is well known to occur at Key West.

*MARGINELLA antiqua*—Fossil.

Testa elongato-ovata, polita, spirâ oblectâ : labio extus incrassato, intus acutè denticulato ; columellâ oblique quadriplicatâ ; aperturâ angustâ, ad extremam spiram extensâ.

*DESCRIPTION.*—Shell oblong-ovate, with polished enamel ; lip much thickened without, closely and deeply denticulate within, and extending quite to the summit of the spire which is entirely concealed by a vitreous deposit ; aperture narrow ; columella with four oblique well developed plaits.

Length, 1.10 inch, (28 millim.) Breadth, 0.57 inch, (14 millim.)

*Habitat.*—Found in the miocene tertiary deposits of Petersburg, Va.

*Remarks.*—It is a pity that this large and striking *Marginella* (for which I am indebted to Chas. M. Wheatley, Esq.) should have lived at a period when no conchologist existed to appreciate its elegance, such as it must have exhibited in its freshness,—and it is equally fortunate that it has so well survived the vicissitudes of ages, as to show most of its original beauties, deprived only of color. I am acquainted with no recent species which illustrates its character. It would occupy an intermediate position between *M. bullata* Born, and *M. angustata* Sowb., but for its serrated lip, and less cylindrical form.

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In a catalogue of the Marginellidæ in my collection, printed for distribution, appear the names of *Marginella Gambiensis*, and *M. vermiculata*. Both these names I have since abandoned, the former proving to be a variety of *M*



*amygdala* Kiener, and the latter having been given to a worn example of a peculiar aspect, which is now ascertained to belong to a variety of *M. quinqueplicata* Lam. M. Petit, in his "Journal de Conchyliologie" for Nov. 1851, describes and figures a *Marginella Hainesii*, which is apparently identical with the shell I had called *M. vermiculata*, and does not appear to me to possess sufficient distinctive characters to warrant its separation from *M. quinqueplicata*. Should it prove otherwise, the name of *M. Hainesii* must be adopted.

In the same journal (which should be more widely known and circulated among conchologists than it is), May, 1851, M. Petit has published a well-digested catalogue of recent and fossil *Marginellæ*. Including *Erato* and excluding a few species which M. Petit thinks should be retained for the genus *Volvaria*, he enumerates 155 recent and 27 fossil species. We note here, that *M. pudica* Gaskoin, which appears in the catalogue as a distinct species, should have been placed as a synonym to our *M. chrysomelina*. We are in doubt as to *M. Delessertiana* Recluz, not having seen the description in *Revue Zool.*, 1841, but from the fact that M. Petit doubtfully quotes for this species fig. 141 of Sowerby's *Thesaurus*, we are inclined to regard it as identical with Orbigny's *M. albolineata*, which does not appear in M. Petit's catalogue, and which Sowerby's fig. 141 certainly represents. If identical, Recluz' name has probably precedence, though the current French mode of publishing works of the character of the "*Mollusques de Cuba*," in fasciuli, *without date*, renders it difficult to decide this point. *M. ovuliformis* Orb. seems also have been overlooked by M. Petit.

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In an article aiming to show the distinctive character of *Cypræa histrio*, and *C. reticulata*, published in vol. 4 of *Annals of Lyc. Nat. Hist.*, pp. 447, 448, I mentioned that I had not had opportunity to consult Meuschen's *Museum Geverisia-*

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num for the the original mention of *C. histrio*. Since then, the munificence of Dr. T. B. Wilson, of Philadelphia, has supplied the library of the Academy of Natural Sciences of that city with a large number of rare books upon natural history, among which is the Museum Geversianum, from which I am now enabled to quote what is said of the species in question, with Meuschen's references.

"No. 1381, P. (Porcellana) *histrio*: elevation, testa maculis atro-fusca, albida fusco-reticulata.

Linn. 327 *æ*. sen. o. Seba iii. 55 in No. 23. Lister 659, 3 a.

Argenv. Suppl. 2 L. Rumphius 39 R! Petiv. Gaz. 53 b.

These citations, particularly that of Lister's figure, seem to fix distinctly the history and character of *C. histrio* as a distinct shell from Martyn's.

In confirmation of the views expressed in that paper, I am enabled, by the kindness of Dr. Gould, to communicate the following note made by Mr. Couthouy, at Disappointment Island, (A-too-a,) while connected with the U. S. Exploring Expedition, showing that the soft parts of *C. reticulata* differ essentially from those both of *C. arabica* and *C. histrio*.

"This (*C. maculata* Barnes = *C. reticulata* Martyn) was published as a distinct species from *C. arabica*, by Barnes, with very good reason, notwithstanding it was disputed in the same journal by some English author not recollected, who asserts it to be nothing but a variety of that shell. Quoy and Gaimard, however, figure that as having the mouth sprinkled with simple white tubercles, and there is a black band on the extremity of the siphon. In *C. maculata* the mantle is nearly the color of burnt sienna, with undulating veins of very deep brown, and very thickly ornamented with short, slender, and taper papillæ. Towards the aperture it is lighter colored than elsewhere. The white patches on the back are all distinct and separate, as in *C. histrio*, but the animal is widely distinct from that species."

*Catalogue of Shells collected at PANAMA, with Notes on  
Synonymy, Station, and Habitat, by C. B. ADAMS, Pro-  
fessor of Zoology, &c., in Amherst College, Massachusetts.*  
Read before the New-York Lyceum of Natural History,  
May 10, 1852.

## INTRODUCTION.

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### ON THE MARINE ZOOLOGICAL PROVINCE OF PANAMA.

Panama is situated near the middle of a well defined marine zoological province. Perhaps none of the species of testaceous Mollusca, (to which part of the Fauna our remarks are limited,) which inhabit the neighboring seas, exist south of  $22^{\circ}$  S. lat., or north of  $28^{\circ}$  N. lat., or west of the Gallapago Islands. All of the few examples of species, which are supposed to have a wider range, are more or less doubtful. Some species which inhabit the northern part of the province, and others which inhabit the southern part, may overlap the boundaries between this and the adjacent provinces. But these species present only the usual difficulty in attempting to define the limits of a zoological province.

The most definite and satisfactory method of defining the limits of this province, is to place the boundaries at the extreme limits of the range of about 99 per cent. of the species which inhabit its middle regions. Thus it will be seen that several of the species which inhabit Panama also inhabit Guaymas, in the Gulf of California, nearly in  $28^{\circ}$  N. lat.; but none of them inhabit San Diego, which is near  $33^{\circ}$  N. lat. In the same manner the southern limit is found near the boundary between Peru and Chili, between  $22^{\circ}$  and  $24^{\circ}$  S. lat.

The reason why the range of the species south of the equator is several degrees less than on the north side, is obvious in the Antarctic current, which sets along the west coast of South America. In like manner, on the eastern

coast of North America, a polar current appears to extend the Arctic Fauna of marine shells to  $41^{\circ}$  N. lat., and the cold current along the shores of the Middle and Southern States seems to limit the tropical Fauna to about  $26^{\circ}$  or  $28^{\circ}$  N. lat. on the coast, although on the east side of the Gulf Stream it extends to the Bermuda Islands in latitude  $32^{\circ}$  N.

It will be seen also in the following pages, that a large number of the species which occur at Panama were collected by Mr. Cuming at the Gallapago Islands. But if any of the species occur in the Polynesian Islands, the number does not exceed three or four, and in these cases the specific identity of the shells is very doubtful. The western boundary of the Panama province may therefore be made to include only the Gallapago Islands.

Thus, in the language of one hypothesis, climate prevents the dispersion of the species to the north or south; and the Antarctic current setting over from the coast of Peru to the Gallapagos, has favored their dispersion to those islands, and the broad sea beyond has restrained them from any farther dispersion westward. Perhaps this is as favorable an illustration as can be found of the doctrine of physical causes accounting for the distribution of the individuals of each species from a single centre. Yet this doctrine is obviously a mere hypothesis. If it be granted that these mollusks *can* travel coastwise until they find the waters too cold for them, it would still remain to be proved that they actually *do* so.

But the supposed dispersion of the species over the sea to the Gallapagos, presents more difficulties than at first appear. The shells of Cirrhopods which adhere to floating wood, have been often found far out at sea; perhaps, too, some species of *Pholas* may be distributed in this manner. But the only way in which such dispersion of the species generally can be accounted for is by an imaginary voyage of their spawn across the sea. The species, in those stages of growth which have been observed, are mostly restricted to narrow, vertical

limits, out of which they never have been found. With most of the littoral species, these limits are extremely narrow. The following is a list of the species which we collected at Panama and Taboga, which occur also at the Gallapagos, with a statement of their habits of station.

*Cypræa rubescens* ; under stones.

*Mitra tristis* ; at the depth of 6 to 10 fathoms of sandy mud ; also under stones, near low water mark.

*Planaxis planicostata* ; under stones, between high water and half tide level.

*Purpura Carolensis* ; under stones, at low water mark.

*Columbella atramentaria* ; under stones, at low water mark.

*Columbella bicanalifera* ; sandy mud, in 10 fathoms water.

*Columbella hæmastoma* ; under stones.

*Columbella nigricans* ; under stones, between half tide and low water mark.

*Ricinula Reevidiana* ; under stones, near low water mark.

*Cassia coarctata* ; in crevices of rocks.

*Oniscia tuberculosa* ; in clefts of rocks, at low water mark.

*Conus brunneus* ; in clefts of rocks, at low water mark.

*Conus nux* ; station unknown.

*Strombus granulatus* ; sandy mud, at the depth of 6 to 8 fathoms.

*Turbinella cerata* ; under stones and in the crevices of rocks, at low water mark.

*Pleurotoma excentrica* ; coral sand, at the depth of 6 fathoms.

*Hipponyx radiata* ; attached to stones, near low water mark.

*Fissurella macrostoma* ; under stones, on the shore.

*Fissurella nigropunctata* ; on stones and rocks, at and below half tide level.

*Siphonaria gigas* ; on rocks near half tide level.

Thus it appears that a larger proportion of the littoral than of the pelagic known species are common to the Gallapago Islands and the mainland : and of the pelagic species, all which are known inhabit moderate depths. Locomotion, therefore, beneath the sea cannot be assumed as a probable means of dispersion.

If, however, the distribution is due to dispersion by the floating of the spawn westward, along with the prevailing winds and currents, it is remarkable that there are no well authenticated examples of clearly identical species which are common to the Gallapagos and to the Polynesian Islands. In respect of species, which so nearly resemble each other as to be sometimes confounded, and which are by some authors regarded as varieties produced by local conditions, the West Indies furnish as many of these analogues to the Panama species as have been found in Polynesia. There is, therefore, no reason for referring the Polynesian analogues to a continental origin.

If such dispersion westward were a fact, then we ought to find, as we go westward from the Pacific shores of America, a continual accumulation of species. For, in addition to the full complement of aboriginal species in any region, there would be a percentage of immigrant species. If such dispersion were a common fact, the Gallapagos should be much richer in species than the continent, and the western regions of Polynesia and the Australasian Archipelago should contain a great number of immigrant species in addition to their aboriginal Faunæ. But there are no facts which correspond with such hypotheses. So far as is known, the Bay of Panama is as rich in species as any region westward, with no more

than an equal variety of stations. The number of species in any region appears to be connected only with climate and *variety of stations*.

It is scarcely necessary to consider the question, whether any of the shells on the opposite sides of tropical America could have had a common origin. Although in some points the Caribbean sea and the Pacific approach within 40 or 50 miles in a direct line, it is difficult to imagine any adequate means of the intercommunication of living marine mollusks. If human agency had transplanted any species, we should have expected that the edible species would have been selected. The following are some of the edible Caribbean species, in the order in which they have appeared to us in Jamaica to be most commonly used: *Trochus pica*, *Pyrula melongena*, *Ostrea folium*, *Arca Noe*, (or an undescribed analogue of this species), *Strombus gigas*, *Turbo cœlatus*, *Avicula crocata*, &c. At Panama, the edible species which we observed are in the same order, *Arca tuberculosa*, *Venus discors*, *Ostrea*, two or three species, *Arca grandis*, *Murex radix*, *Pyrula patula*, &c. All of these are remarkably distinct, if we except the *Pyrulæ*, which are analogues. If it should be supposed that the analogues might have had a common origin, it will be seen that the entire list of analogues comprises a full proportion of the rare or minute species, which are not likely to have been noticed by the inhabitants.

Birds are commonly called in to aid the imaginary dispersion of species. On the Isthmus, the buzzards are best able, with their extraordinary powers of flight, to transport them; but their habits of feeding are wholly at variance with such a supposition. The water birds which feed on the marine mollusks are unknown to us. But if their agency has been effective, it is remarkable that we can identify only one species, and that doubtfully, (*Crepidula unguiformis*), on both sides of the Isthmus, and that the habits of this mollusk, at-

tached to dead shells within the aperture, render it one of those which are least exposed to such accidents.

The following is a list of the principal pairs of analogues which inhabit both sides of the Isthmus. The list might be increased, especially by comparison of the very minute species. But the group, as it is, presents such a variety in respect of size and characters, of habits of station, tenacity of life, &c., as to render it incredible that they all should owe their distribution in pairs to a common process of transportation. *Cypræa cervinetta* occurs only beneath large rocks, at the low water mark of the spring tides, and lives but a short time when removed from the water, and *Strombus gracilior* is pelagic; and the others live at or near low water mark on rocks, under stones, in sand, in fine mud, &c. In general the derivation of analogues from a common stock is moreover inconsistent with the existence of analogues which are antipodes to each other.

Panama.	*Jamaica.
<i>Cypræa cervinetta</i> ;	<i>C. exanthema</i> .
<i>Marginella minor</i> ;	<i>M. minima</i> .
<i>M. sapotilla</i> ;	<i>M. prunum</i> .
<i>Mitra nucleola</i> ;	<i>M. granulosa</i> .
<i>Oliva araneosa</i> ;	<i>O. reticulata</i> .
<i>O. venulata</i> ;	<i>O. scripta</i> .
<i>Purpura undata</i> ; *	<i>P. fasciata</i> .
<i>Columbella guttata</i> ;	{ <i>C. cribraria</i> Lam.
	{ <i>C. parvula</i> Dunker.
<i>Cassis abbreviata</i> ;	<i>C. inflata</i> .
<i>Oniscia tuberculosa</i> ;	<i>O. oniscus</i> .
<i>Strombus gracilior</i> :	<i>S. pugilis</i> .
<i>Triton vestitus</i> ;	<i>T. pilearis</i> .
<i>Murex erosus</i> ;	<i>M. intermedius</i> .
<i>Pyrula patula</i> ;	<i>P. melongena</i> .

\* These Carribbean species have all been collected by us in Jamaica.



Panama.	Jamaica.
Turbinella cæstus ;	T. muricata.
Cerithium assimilatum ;	C. terebellum.
Fissurella microtrema ;	F. sp. indet.
Arca gradata ;	A. Domingensis.
Cytherea squalida ;	C. maculata.
Capsa altior ;	C. Brasiliensis.
Tellina sp. indet. ;	T. bimaiculata.

The number of known species of shells which occur in the Panama province, probably is not far from 1500. The actual number is undoubtedly much greater.

An examination of the catalogue of the species which we collected in the Bay of Panama, will show that nearly all the very minute species are new to science, although most of the larger shells have been described. In other words, the species which are as small as those which constitute a large portion of the conchological Fauna of regions, which have been thoroughly explored, have been overlooked by previous collectors. This is by no means surprising, when we consider the great number of species, and the abundance of their individuals, which are of a size that is more convenient for discovery and collection. It is also accounted for in part by the fact that the minute species in this region are much more rare in individuals. Yet the new species, which were collected in six weeks at two localities, must be a very small portion of those which actually exist in this zoological province. Perhaps, therefore, the number of the undiscovered species is equal to that of the known species.\*

\* After describing nearly sixty new and rather small Pleurotomoid shells which had been collected during the voyage of H. M. S. Sulphur, Mr. Hinds observes, "when we reflect what multitudes of similar beings inhabit the recesses of the globe, beyond the reach of human observation, and which at rare intervals are brought to light, \* \* it requires the boldest stretch of the imagination even to bring within the comprehension an idea of the countless multitudes of organised beings of our earth, and all rich in some manner peculiarly their own, either in color, sculpture, decoration, or symmetry."—*Hind's Zool. Voy. Sulph. Moll.* p. 24.

On the Eastern side of the continent, a totally distinct marine zoological province, which may be called the Caribbean province, occupies about an equal part of the earth's surface. It has however, a much greater extent of coast, in the great number of islands, and in the sinuous outlines of the continent. The number of known species of shells in this province is not far from 1500. The actual number probably is less than in the Panama province. It is a remarkable fact that the number of rather large species in the Caribbean province is but a small fraction of the number of such species which occur on the other side of the continent. Of the Caribbean species, very few occur north of the Bahamas, or south of Brazil, although, from various sources of error many of them have been reputed to inhabit England, and various other parts of the world. Although there are several analogous species in the two provinces, in general there is a great dissimilarity.

*Conchological Collectors in the Panama Province.*

One of the earliest collectors in this zoological province was Joseph Dombey, the well known French Botanical traveller. Dombey arrived in Peru, on his botanical expedition, in April, 1778. He is quoted by Lamarck for eight new species of shells from Peru.

Baron Humboldt, and his companion, M. Bonpland, next made collections of the shells. In 1803 they were on the coast of Peru, whence they sailed to Acapulco. Here they collected many species, of which eleven are described by Lamarck in the *Animaux Sans Vertebres*. The first volume of Humboldt's *Recueil D'observations de Zoologie, &c.*, was published in 1811; but the second volume in which the shells are described by M. Valenciennes, bears the date of 1833. Of the 92 species mentioned 88 are described in full, and of the 92 all but 3 or 4 are said to inhabit this province. In

the case of several species however, errors have evidently crept in. Either the species must have been derived from other regions and were given to the travellers as natives, or the describer has confounded analogues. The *Columbella rustica*, mentioned with doubt, may have been a *C. fuscata*. *Cassis testiculus*, which inhabits only the West Indies, *Ranella granifera*, *Pyrula ficoides*, *Pyrula vespertilio*, and *Solarium granulatum*, which inhabit the Indian ocean, are said to have been collected at Acapulco. Perhaps the ancient extensive commerce between Acapulco and the Philippine Islands may have introduced, into the dwellings, at Acapulco, specimens of East India shells.

Next we find in the supplement to Wood's Index several species from the same province, and most of them were collected at Panama.

In Feb. and March 1823, the Coquille (French) was at Callao and Payta. M. Lesson has enumerated 8 marine species of shells collected here, none of which are identical with our Panama shells.

But we are chiefly indebted for a knowledge of the shells of this region to the well known expedition of Hugh Cuming, Esq. This celebrated collector, who has in person collected one-third of all the species of shells now known to science, was occupied in the years 1827-30 in collecting the shells of this province and of adjacent parts of the Polynesian and southwest American shores. Besides previously known species, 400 new species were collected, of which a large majority were obtained at the Gallapagos and on the western shores of tropical America. His explorations comprised, in fact, the whole of this zoological province, with the exception of its northern extremity. The description of the new species was commenced by the London Conchologists in the Proceedings of the Zoological Society, Feb. 28, 1832, and were continued for about four years, until the second and great expedition of

this gentleman to the Philippines. Subsequently more of them have appeared in the Proceedings of the same Society, in Sowerby's *Thesaurus Conchyliorum*, and especially in Reeve's *Conchologia Iconica*. In these last two works, we find the habitats of all, and the stations of most of the species collected by Mr. Cuming, so far as the genera have been monographed.

The laborious and productive travels of the Chev. Alcide D'Orbigny during the years 1826-33, comprise a portion of this zoological province. In July 1833, this gentleman reached the Pacific coast at Arica by a journey across the Andes. Embarking thence on the 25th, he stopped at Cobijo, Islay, Arequipa, and Callao. Re-embarking here, this industrious traveller returned to Europe by way of Valparaiso.

In the large quarto which D'Orbigny has devoted to the Mollusca of South America, numerous species of shells are described from the four marine faunæ. Among them are many which were collected by M. Fontaine, and by Mr. Cuming, and others. The tropical and the temperate marine faunæ of the west and east sides are shown to be entirely distinct in respect of the Mollusca, of which 628 species are enumerated, there being only one species common to any two of these provinces. But it is conjectured that collections made near the southern extremity of the continent on both sides might show that several species are there common to the Atlantic and Pacific faunæ. The species common to both sides is *Siphonaria Lessoni*, found at Montevideo and at Callao. Other species, however, are said, in the body of the work, to inhabit both sides of the continent, as *Bulla striata*. But in this case, analogous species may have been confounded. Since Dr. Philippi has shown that several species had been confounded under this name, the specific types are found to be as local as most species are. D'Orbigny is one of the very

few travellers who have collected any of the very minute shells of the tropics.

In 1836-37 the *Bonite* (French) made a voyage of exploration around the world. In the summer of 1836 this expedition touched at several places in the southern part of the Panama zoological province, as far north as Guayaquil, whence the *Bonite* sailed for the Sandwich Islands. M. M. Eydoux and Souleyet were the zoologists of the expedition. The former gentleman died of yellow fever at Martinique in 1841, before the results in this department were published. On the Mollusca we have seen only a folio volume of about 50 plates, without date and without text. The only text of the zoology which we have seen, is on the mammals and birds, with date of 1841.

In August, and during the remainder of 1836, H. M. S. the *Sulphur*, under Lieut. Commander Kellett, visited Callao and Payta, and carefully explored the coast from Guayaquil to Panama. Here Commander (now Captain Sir Edward) Belcher arrived and took command, and in collecting shells was aided by Mr. Hinds, surgeon of the expedition. The dredge was frequently used, and the cabin of the commander became a museum. Proceeding to the north, they visited numerous places up to San Blas, in June 1837. In the following December, the *Sulphur* returned to the coast, and explorations were made from Acapulco to Cerro Azul. Again in the latter part of 1838, and during much of 1839, collections were made in many localities. About 70 new species were described by Mr. Hinds in the Proc. Zool. Soc. of London, commencing February 14, 1843; also in the Zoology of the voyage of H. M. S. *Sulphur*; and they have been included in monographs which have subsequently been published in London.

In 1837 the *Venus* (French) was at Callao from May 24 to June 3; from Nov. 25 to Dec. 6 at the Bay of Magdalena, in the peninsula of California; from Dec. 12 to Dec. 18, at

Mazatlan; Dec. 21 to Dec. 27 at San Blas; Jan. 8, 1838 to Jan. 23 at Acapulco; May 10 to June 1 at Callao; June 5 to June 17 at Payta; June 23 to July 3 at the Gallapagos. The Atlas de Zoologie of this expedition, (pub. 1846) contained 24 folio plates, of shells and mollusca. The text we have not seen.

In 1839 the U. S. Exploring Expedition touched at Callao, which was the only place in this zoological province, that was visited by the expedition. About 30 species of shells were collected, of which four new species have been described by Dr. Gould in the Proceedings of the Boston Society of Natural History since 1846.

In the Zeitschrift fur Malakologie of Aug. 1847, Dr. K. T. Menke commenced a catalogue, with descriptions of the new species, of the shells of Mazatlan. These shells were collected by Mr. Henry Melchers of Bremen, who has spent several years in Mazatlan. Additions have since been made to the catalogue, and up to Feb. (inc.) 1851, Dr. Menke has catalogued 173 Mazatlan species. Of these 26 are described as new species, not including a few which were proposed as new but have since been identified by Dr. Menke with previously described species.

At the present time Dr. Gould is engaged in the examination of species, which have been collected at various points between San Francisco and Mazatlan. These collections were made by Maj. William Rich, and Col. E. Jewett, U. S. A., and by Lieut. Thomas P. Green, U. S. N. They are the more important, because they come from regions intermediate between two great zoological provinces, and we may hope therefore that Dr. Gould will show, with as much precision as the facts themselves will admit, the boundary between them. At a meeting of the Boston Society of Natural History, September 3, 1851, Dr. Gould read descriptions of 17 new species of *Acephala* from these frontier regions. The collections made

by Lieut. Green merit especial notice. This officer collected more than 200 species, and carefully noted the habitat of the specimens. Of those which have been determined by Dr. Gould, and which were also found by us at Panama, we have incorporated into the following paper the habitats observed by Lieut. Green. This collection proves conclusively that Upper California belongs to a distinct Zoological province.

The shells collected by Nuttall in Upper California in 1836, and described in the Journ. Acad. Nat. Scs. of Philadelphia, VII, in 1837, confirm this inference. None of them are identical with the species which inhabit Panama.

*Narrative of the Expedition.*

In November, 1850, I left home with the design of spending a few weeks on the Isthmus of Panama, and the remainder of the winter in Jamaica. Leave of absence not having been granted until Nov. 6, the preparations were few and hasty. On the afternoon of the 13th I sailed from New York in the Steamer Empire City, Captain J. D. Wilson,\* and on the morning of the 22nd, landed at Chagres. Most of that day was occupied in rambling about the shores. A few shells were found of the same species, which occur throughout the Caribbean seas. But near Chagres the shores are too much exposed to sustain many species of Mollusks. In the afternoon, Captain Knight, his clerk, and myself hired a boat and started for Cruces, where we arrived on the evening of the 25th. The

\* Since it must be confessed that American naturalists find little sympathy with their pursuits among most of their countrymen of all classes, it affords me the more pleasure to acknowledge my obligations to the owners of the Steamer, Messrs. J. Howard & Son, for a passage to Chagres; and to Capt. Wilson for various attentions on the voyage, and subsequently at the monthly visits of the Steamer to Jamaica. To Capt. E. Knight, agent of the Pacific Mail Steam Ship Co., and my travelling companion across the Isthmus, I was especially indebted for unusual facilities in crossing, as well as for other aid. Good company, and the extraordinary beauties of nature, more than compensated for four days saturation in mud and water during the transit.

next day we rode to Panama, where I soon found myself at home in the American Hotel.\* Before 8 A. M., of the next day, shells had been collected in such quantity and variety, that, had nothing more been subsequently collected, the results of the expedition would have seemed ample.

The objects proposed to be accomplished, during a few weeks at Panama, were the following :

1. To make collections for the Museum in Amherst College. The original plan had embraced the Crustacea, Radiata, and other animals, but the short time to be devoted to it, and especially the impossibility of making suitable preparation during the few hours, which were allowed for this purpose, rendered it expedient to restrict the objects mainly to the collection of shells.

2. A second object was to ascertain, with the certainty of personal observation, what and how many species of shells exist at Panama. Having formerly collected about 500 marine species in Jamaica, near the centre of the Caribbean Zoological province, it was thought that a comparison of these authentic materials would not be without interest. These two were the principal objects of the expedition.

3. A subordinate object was to make some observations on the habits of the species, in respect of station. Mr. Cuming's careful explorations had left but little to be added, but that little is therefore perhaps the more valuable. This knowledge was also a necessary preliminary to the acquisition of such a quantity of specimens as would fully illustrate the varieties, which may exist within the limits of a species. But these observations, could not be extended to the pelagic species on account of the enormous expense of boating consequent on

\* With James C. Staples, Esq., the proprietor, an old acquaintance and connection, who with his partner, myself, and all my Mollusks, occupied as comfortable an apartment as the place could furnish.



the California travel. Littoral explorations however, produce a greater amount of results in a short time.

It has become so fashionable to undervalue a knowledge of the shells of Mollusca, because the shell is only a part of the animal, that we shall probably be censured for having neglected to observe the soft parts. But *non omnes omnia possumus*, especially with only six weeks time. It will not be denied that *the existence* of the species is sufficiently proved by collecting the shells, nor that their geographical distribution may be learned, when we ascertain where they exist,—nor that habits of station may be learned without dissection, although this is indispensable for some objects,—nor that the *recondite* questions on the origin of the species are intimately connected with the facts of distribution and station,—nor even that the number of species in a given region and the abundance or scarcity of individuals are interesting features in the plan of creation. In short, it will not be denied that the sum total of Zoology consists of parts, and that the perfection of the whole may be better secured by a division of labor. We hope therefore, that the following results, notwithstanding the magnitude of the deficiencies, will be regarded as somewhat better than the only alternative before us,—that of the stay-at-home collectors.

The situation of Panama is eminently favorable for the collection of shells. At the head of an extensive bay, whose waters well merit the appellation of Pacific, it stands also at the head of a reef, which furnishes a great variety of station for the mollusks. Our hotel was within a minute's walk of this reef. In front of the city, the reef consists of ledges of trachytic rocks, with flat and concave surfaces, with gently sloping, precipitous, or shelving sides: in other parts extensive tracts are covered with loose fragments of rock, the different sizes of which, and the different degrees in which they are buried in sand, or in which they have open spaces be-

neath, accommodate a great diversity of species : in some parts, flats of mud or of sand prevail.

On the west of the city is a very broad gently sloping beach of fine sand, where *Oliva*, *Tellina*, *Donax*, and *Artemis* abound. Then proceeding westward we find alternating ledges of trachytic and basaltic rocks, sand beaches, and broad muddy or sandy flats, with groves of trees a little above half tide level. Here during the recess of the tide, the collector finds an agreeable shade, and gathers *Purpuræ* and huge *Littorinæ* from the trees, and numerous species of *Veneridae*, of *Columbella*, the little and elegant *Veritina picta*, and sometimes the massive *Arca grandis*, among the sticks and moss-like *Algae* beneath. Three miles west of Panama a Rio Grande enters the bay, and is bordered by impenetrable thickets of mangroves and not impenetrable ooze.

On the east side of Panama is a steep sand beach, at the bottom of which the flats consist of an impalpable mud of a creamy consistence. On this fluid, *Marginella sapotilla* crawls or rather glides rapidly about. Between two and three miles to the East, there are ledges of smooth basaltic rocks, with abundant *Littorinæ*, *Fissurellæ*, and *Siphonariæ*. Here too are marine groves, rising from a stony surface, by the side of which a small rivulet comes in. At high water mark is a mangrove thicket, beneath which in near proximity we find the *Potamides*, *Arcae*, a large *Cyrena*, *Potamomyæ*, and the elegant *Auricula concinna*, and over head is *Littorina pulchra*, but almost as rare as beautiful. A little farther up, where the water is nearly fresh, occurs the *Neritina Guayaquilensis*, whose thin depressed elliptical shell attests its fluviatile habits, unlike the solid ellipsoidal shell of the marine *N. picta*.

This diversity of station was multiplied by the high tides. In the office of the Pacific Mail Steamship Co., we saw it recorded on a tide table, that the extreme difference of high and low water had amounted to 28 feet. The ordinary tides

are about sixteen to twenty feet. The difference between the spring tides and the neap tides amounts to from four to six feet. Hence at the low water mark of two or three tides, once each fortnight, species of shells, as well as of Echinoderms and other animals, may be obtained, which cannot be procured at any other time except by dredging. Other species live where every tide will leave them exposed to the air for a short time. All the way from low water mark, up to the ledges of rocks where some species of *Littorina* live out of the reach of the highest tides, species are found, most of which are limited to a very narrow vertical zone. The surface in front of the city, which is left bare by the recess of the tide, extends out half a mile or more. Thus over several square miles the secrets of the ocean may be explored.

The bay of Panama contains several beautiful islands, which rise as steep mountains directly from the water's edge. One of these is Taboga,\* 12 miles from Panama, from and to which a small American steamer runs daily. We made two excursions of three days each to this island. The shores are mostly steep, but sand beaches, ledges, and enormous fragments of rocks, afford many favorable stations for the Mollusks. At high water, a small island, on the northeast side, is cut off from the principal island, but at low water a high ridge of sand unites them. Here the elegant *Conus Mahogani*, *Strombus Peruvianus*, *Natica otis*, *Corbala ovulata*, &c., were found.

These varieties of station enabled us to find a multitude of species in their proper haunts. But in addition to this advantage, the hermit crabs (*Paguridae*) swarmed here, as elsewhere in tropical regions. Some of the smaller species have the habit of congregating in heaps of many hundreds

\* This name is sometimes written, erroneously we believe, Tabago; and sometimes, in the publications of the London Conchologists, Saboga.

beneath stones. Many such heaps were collected in the mass, to be culled over in the leisure of home. To this source we are wholly indebted for many species of shells, not a few of which are in such a good state of preservation that we have to regret only the impossibility of describing the station of these species.

In these Pacific waters, not much addition to the stores of the collector can be made from the drift shells. Yet the flow of the tides and a moderate surf brought several species within reach. Several of the bivalves, which live buried in sand, and whose station eluded discovery, were thus obtained. But especially were we indebted to this source for the extremely minute species, several of which were not recognised until the conchiferous rubbish and sand had been assorted with sieves and then carefully examined.

From the natives we obtained but little aid. The shells of a few edible species were taken from heaps near their huts. A few species were obtained in a fruit shanty, which was kept by an American on the Plaza. The habitat of most of these was verified by subsequently finding them on the shores. That of four or five species was satisfactorily inferred, independently of the testimony, from the fact that no shells known to inhabit other regions were seen in the shanty, and that these species have been found by others in the same zoological province. Those which were thus obtained are mentioned accordingly in the statement of habitat.

In a few instances it will be noticed that our account of the *station* differs somewhat from Mr. Cuming's. This is due chiefly to the considerable range which some species have, especially with different circumstances of place. Thus several of the species, which we found at the low water mark of spring tides, were obtained by Mr. Cuming at the depth of fifteen or more fathoms. The difference between such stations is obviously of much less importance than that between

this extreme low water mark, where the air will but slightly reach the animal every fortnight, and that of a few feet higher, whence the water wholly recedes twice every day.

Having an opportunity of shipping the collections, which filled eight cases, we wrote the bills of lading, Jan. 3, 1851, and the next morning left Panama for Chagres and Jamaica. It was not until Aug. 14 that the cases arrived at their destination. After assorting the shells, we find 38.920 specimens of 376 species of Gasteropoda, 2.860 specimens of 139 species of Acephala, and 50 specimens of 1 species of Brachiopoda : total, 41.830 specimens of 516 species of Mollusks. The number of specimens of each species is mentioned in the following pages. It is scarcely necessary to add that we have stated the total number of individuals, to give approximately an idea of the relative abundance of the species at the time and places mentioned, and not of such specimens as amateurs would pronounce 'good shells.'

In the following catalogue our principal object, after the enumeration of the species, has been to collect the statement of various writers concerning the habitats and stations of the species. Where two names of persons follow the habitat or station, the first is usually that of the person who collected the species, and is followed by an exclamation mark ! The second name is that of the author who is quoted. The (!) after a single name indicates that the author was also the collector ; but the absence of this mark indicates that the testimony is not original, whether one or more names are cited.

It will be seen that for a knowledge of the stations we are chiefly indebted to Mr. Cuming.

In appending synonymy, we have quoted nothing. The references have been made chiefly as vouchers for the accuracy of the names of the species, and as means of detecting errors. A subordinate object has been the convenience of those friends among whom the duplicate specimens may be

distributed. We have been under obligations, which we acknowledge with much pleasure, to Dr. A. A. Gould, of Boston, and to John H. Redfield and Robert L. Stuart, Esqrs., of New-York City, for the use of books; also to the librarians of the Boston Athenæum, of Harvard University, of the Acad. Nat. Sciences, of Philadelphia, and to Dr. Henry Wheatland, of the Essex Institute in Salem; chiefly have we been indebted to the nearly complete zoological library which Drs. T. B. and Edward Wilson have presented to the Academy of Natural Sciences of Philadelphia.

*On Errors Respecting the Habitat of Species.*

Those who are familiar with the frequency and magnitude of the errors, which occur in the works of the most celebrated authors respecting the habitats of species, will not probably accuse us of presumption for the little ceremony with which we have treated such statements. Hearsay testimony has often been received without sufficient scrutiny. In addition to the errors likely to occur in the verbal communication of statements respecting habitat, naturalists at home are of course subject to all the mistakes which the original collectors may have made. These persons often mix the collections made in various places, and depend on memory for the localities, although they are often unable to distinguish the species when placed side by side.\*

Another class of errors, we fear, must be laid to the charge of the writers themselves. When we see a marine species affirmed to inhabit the Mediterranean, Senegal, the Indian

\* Thus we have received from an intelligent shipmaster, who was accustomed to collect for a conchologist, specimens of *Cyclostoma flavidum*, with the positive assurance that they were collected in a spot well known to us, not far from Kingston, Jamaica. Yet the species occurs only in Porto Rico, while the locality in Jamaica contains a *Cylindrella* of similar aspect. We may be allowed to mention also an illustration of the manner in which mistakes of locality and not of species

Ocean, New Holland, &c., we may often suspect the error to arise more or less from erroneous testimony. But when one species is referred to two distinct zoological provinces, which are known to contain analogous but not identical species, we must sometimes suspect the author of confounding such species. If indeed in these cases the difference of the local types were clearly distinguished, it would be of little importance whether or not the difference were considered to be of specific value. But not even after the specimens are deposited in a collection has all danger of error ceased. A misplacement of labels or of shells, which are not properly secured, may lead to erroneous statements of habitat.

For all these causes of error there is but one remedy, and that is not infallible. Rejecting the testimony of careless and incompetent observers, and all hearsay testimony, we must rely on the testimony of competent observers. We may hope for accuracy when they shall remember that a very few errors may essentially change the aspect of the plan of distribution, and prevent all correct generalizations.

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A great amount of valuable materials, for interesting generalizations on the number and distribution of the species of marine Mollusks, has been collected by public and private expeditions. But when we consider the immense profusion of species and of individuals in tropical seas, and the confusion of the habitats of many as exhibited in the present literature of conchology, so that the plan of distribution is misrepresented,—that which has been done only stimulates

may happen in casual collections. By a singular coincidence, only a few days after we had described *Helix Redfieldiana* (which proves to be *H. Carmelita* Fer.) that inhabits a limited district in Jamaica, a specimen was brought to New-York by a collector, who affirmed that he procured it in California. Subsequently the statement was repeated, but afterwards it was recollected that the shell had been purchased in Kingston, where the steamers stop on their homeward voyage.

the curiosity to know more and to know more accurately. An expedition of circumnavigation, with the specific object of investigating the distribution of the testaceous Mollusks, through several tropical marine provinces, would accomplish more than the discovery of many new species: it would determine the distribution of a much greater number, in a manner which would justly inspire confidence.

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*Index of Places in the Pacific, which are mentioned in the Catalogue of Panama Shells.*

*Acapulco.* A town and harbor, in Mexico; it is the principal and best port of Mexico on the Pacific; lat.  $16^{\circ} 55'$  N.; long.  $100^{\circ} 54'$  W.

*Annaa.* An island in Polynesia. Probably Anna or Aana, or Chain Island; lat.  $17^{\circ} 20'$  S.; long.  $145^{\circ} 40'$  W.

*Arica.* In Peru.

*Atacamas.* A seaport in Ecuador, on the Pacific.

*California.* The boundary between Upper and Lower California is near lat.  $33^{\circ}$  N. The waters of Upper California, therefore, belong wholly to the temperate Fauna, and those of Lower California almost wholly to the tropical Fauna. The Fauna of the Gulf of California is tropical, at least as far as Guaymas. The importance in zoology of distinguishing between Upper and Lower California, in statements of habitat, is therefore obvious. New Albion was a name given by Sir Francis Drake, to an extent of coast which includes upper California and Oregon, and is often used more indefinitely.

*Callao.* The port of Lima, capital of Peru; lat.  $12^{\circ} 2'$  S.; long.  $76^{\circ} 58'$  W.

*Caraccas, Bay of.* A small bay on the coast of Guayaquil, next north of Cape San Lorenzo, between  $\frac{1}{2}^{\circ}$  and  $1^{\circ}$  S. lat. It is not mentioned in any of the Gazetters which we have consulted. It is also called Manta Bay.

*Central America.* This name is used very indefinitely by some conchological writers. It includes on the Pacific, only Guatemala, San Salvador, Nicaragua, and Costa Rica, from about lat.  $9^{\circ}$  N. to  $15^{\circ}$  N. The whole country was called Guatemala before its independence.

*Cerro Azul.* A town in Peru, in the department of Lima.

*Charles I.* One of the Gallapagos, at the southwest part of the group.

*Chatham I.* One of the Gallapagos, at the southeast part of the group.

*Chili.* Its northern boundary, about  $24^{\circ} 20'$  S. lat., is not far from the southern limit of the tropical Fauna.

*Chiloe.* A large island in the southern part of Chili, between  $42^{\circ}$  and  $44^{\circ}$  S. lat.

*Chiriqui.* A town in Veragua, Central America, on the Pacific side; lat.  $8^{\circ} 30'$  N.; long.  $83^{\circ} 28'$  W.



*Columbia, West.* New Grenada, reaching from about  $2^{\circ}$  S. lat. to  $8^{\circ}$  N. lat.; including Guayaquil on the South. It is frequently written Colombia.

*Conchagua.* Another name for the Bay of Fonseca; also the name of a volcano near the same place.

*Costa Rica.* A province of Central America, between Nicaragua on the north, and Veragua on the southeast. The Gulf of Nicoya penetrates the middle portions; it lies between about  $8^{\circ} 30'$  and  $10^{\circ} 40'$  N. lat.

*Cuzma.* A town on the coast of Peru; lat. about  $9^{\circ} 40'$  S.

*Fonseca, Gulf of.* Also called Amapalla and Conchagua. A spacious harbor in Central America; lat. about  $13^{\circ}$  N.

*Gallapago Islands.* A group lying under the Equator, with the line of  $85^{\circ} 30'$  W. long. passing through the central island. They are uninhabited. They are about 600 nautical miles from the mainland.

*Guacomayo.* In Central America.

*Guayaquil.* A town, gulf, &c., in lat.  $2^{\circ} 11'$  S.

*Guaymas.* A town in Mexico, on the East side of the Gulf of California, in lat. about  $28^{\circ}$  N.

*Honda, Bay of.* A small bay next west of Montija Bay, in Veragua, in about  $7^{\circ} 45'$  N. lat.

*Islay.* In Peru.

*Isthmus.* Sc. of Panama.

*Lambryque.* A town on the coast of Peru; lat.  $6^{\circ} 45'$  S.

*La Paz.* A town or mission in Lower California, on the west side of the Gulf, in lat. about  $24^{\circ} 30'$  N.

*Lobos I.* Near the coast of Peru, in lat. about  $6^{\circ} 40'$  S.

*Lord Hood's I.* Hood's I., in the southeast part of Polynesia, in about  $22^{\circ}$  S. lat. and  $135^{\circ}$  W. long.

*Magdalena, Bay of.* In Lower California, on the Pacific side, in lat. about  $24^{\circ} 40'$  N.

*Mazatlan.* A town in Mexico, near the entrance of the Gulf of California, in lat. about  $23^{\circ} 20'$  N.

*Mexico.* Occupying the Pacific shore from lat. about  $33^{\circ}$  N. to  $15^{\circ}$  N., from Upper California to Central America.

*Monte Christi.* A town in New Grenada, in the province of Guayaquil; lat. about  $1^{\circ}$  S.

*Montijo, Bay of.* In Veragua, on the south side, next west of the Bay of Panama.

*Muerte, Isle of.* In the Bay of Guayaquil.

*Nicoya, Gulf of.* In Costa Rica, lat. between  $9^{\circ}$  and  $10^{\circ}$  N.

*Pacormayo.* Probably in Central America.

*Panama.* A town, province, bay, &c., in New Grenada. The town is in lat.  $8^{\circ} 49'$  N. long.  $8^{\circ} 21'$  W.

*Papagayo, Gulf of.* In Central America, between Costa Rica and Nicaragua, in lat. about  $11^{\circ}$  N.

*Payta.* A town in Peru, in lat.  $5^{\circ} 15'$  S.

*Peru.* Occupying the Pacific shore from New Grenada to Chili, from about  $4^{\circ}$  S. lat. to  $25^{\circ}$  S. lat.

*Plata, Isle of.* On the coast of Guayaquil, in lat.  $1^{\circ} 10'$  S.

*Polynesia.* Comprising most of the tropical regions of the Pacific.

*Puerto Portrero.* In the Bay of Guayaquil.

*Puna, Isle of.* In the Bay of Guayaquil; about  $3^{\circ}$  S. lat.

*Punta St. Elena.* A cape on the coast of Guayaquil, in lat. about  $2^{\circ} 10'$  S.

*Quito I.* In the Bay of Guayaquil.

*Real Ileja, or Realejo.* A port in Nicaragua, serving as a harbor to Leon, lat.  $12^{\circ} 43'$  N.; long.  $87^{\circ} 46'$  W.

*Rio Grande.* A name given to many rivers by the Spaniards. The one referred to is a small stream near Panama.

*Saboga.* An error, for Taboga.

*St. Elena.* A town on the coast of Guayaquil, in lat. about  $2^{\circ}$  S.

*Salango.* On the coast of Guayaquil, about  $1^{\circ} 30'$  S.

*San Blas.* A town on the west coast of Mexico, lat. about  $22^{\circ}$  N.

*San Diego.* A town on the coast of Upper California, one league from the southern boundary; lat.  $33^{\circ} 12'$  N.; long.  $116^{\circ} 53'$  W.

*San Francisco.* The principal port of Upper California; lat. about  $37^{\circ} 20'$  N.; long. about  $122^{\circ}$  W.

*San Juan.* A bay on the east side of Lower California, in lat. about  $27^{\circ}$  N.

*San Lorenzo.* A cape on the coast of Guayaquil, about  $1^{\circ}$  S. lat.

*San Salvador.* A city in Central America, on a river, twelve miles from the coast; also an adjacent district along the coast.

*Santa Barbara.* In California.

*Sitcha.* An island on the coast of Russian America, in lat.  $57^{\circ}$  N.

*South Seas.* An indefinite term for more or less of the Pacific Ocean adjacent to America.

*Taboga.* A small island twelve miles southwest of Panama. It has a better harbor than Panama, and is the depot of the Pacific steamers.

*Tahiti.* The largest of the Society Islands; lat.  $17^{\circ} 30'$  S.; long.  $149^{\circ} 20'$  W.

*Toobouai.* A small Polynesian island, under the southern tropic, in lat. about  $150^{\circ}$  W.

*Tumbez.* A town near the northern extremity of the coast of Peru; lat.  $3^{\circ} 40'$  S.; long.  $79^{\circ} 51'$  W.

*Veragua.* The southeastern province of Central America, between Costa Rica and the Isthmus of Panama.

*Xipizapi.* A town on the west coast of New Grenada; lat. about  $1^{\circ} 30'$  S.

## Family—CYPRÆIDÆ.

**OVULA.**—M. Kiener's monograph of this genus contains only 23 species, but Mr. Sowerby, in *Thes. Conch.*, describes 48 species, besides 4 from the west coast of tropical America, which were described in the *Proc. Zool. Soc. Lond.*, 1832, and figured in the *Conch. Illust.*, but which seem to have been overlooked when his monograph was published in 1849. Some of Mr. Sowerby's habitats of the species are so comprehensive, that we cannot suppress the suspicion of some error, either in the testimony on this point, or in confounding allied species. Especially are we perplexed by the habitat assigned to the well-known and very distinct Caribbean species, *O. gibbosa*, "collected at Panama by Mr. Cuming." Dr. Jay, however, in the last edition of his catalogue, mentions (copies?) the same habitat. The general question of the identity of any specific types on both sides of the Isthmus is of so much importance as to require a careful scrutiny into all statements of such identity.

1. *Ovula avena*.*Synonymy.*

<i>Ovulum</i>	<i>avena</i>	Sowb. <i>Proc. Zool. Soc. Lond.</i> p. 173.	-	Oct.	1832.
—	—	Mull. <i>Synop. Nov. Test. Viv.</i> p. 128.		May	1836.
—	—	Sowb. <i>Catal. Cyp.</i> p. 17. No. 29.	-	-	1841.
—	—	Sowb. <i>Conch. Ill.</i> pl. 8. f. 59.	-	-	1841.

Our shells are somewhat smaller than the figure here quoted. This is one of the species omitted in the *Thesaurus*.

*Station.*—We found this Mollusk on a small species of *Gorgona* at the low water mark of the spring tides.

*Habitat.* "In America Centrali, (Conchagua.)"—Cuming! —Sowerby in *Proc. Z. S.*

"At Conchagua in Mexico."—Cuming! Sowerby in Catal. Cyp.

Mexico.—Jay.

Santa Barbara.—E. Jewett! Gould MSS.

Panama.—C. B. A.!

We obtained six specimens on the reef at Panama. The second quotation contains a geographical error. If this is copied by Dr. Jay, we have only two habitats, besides Panama. Conchagua is another name for the Gulf of Fonseca.

## 2. *Ovula emarginata*.

### *Synonymy.*

*Ovulum emarginatum* Sowb. Spec. Conch. Part I, p. 7,

f. 54, 55. - - - - - Nov. 1830.

Gray Deser. Catal. p. 19. No. 161. June 1832.

*Ovula emarginata* Kiener Iconog. p. 18. pl. 3. f. 2.

*Ovulum emarginatum* Sowb. Thes. Conch. p. 479. No.

39. pl. 99. f. 11. 12. - - - 1848.

Of our three perfect specimens, one is covered with fine revolving striæ over the whole of the back, not excepting the keel; another, over all but the keel, as in the fig. in Sowb. Thes.; the third is smooth over the middle portion, as in Kiener's figure.

*Station*.—Unknown.

*Habitat*.—Unknown.—Sowerby in Spec. Conch.: also Kiener.

St. Elena.—Cuming! Sowerby in Thes. Conch.

St. Elena.—Jay.

Panama.—C. B. A.!

In the Species Conchyliorum, Mr. Sowerby says, "the only specimen of this rare species I have seen is in Mr. Bland's collection." We were indebted to the hermit crabs for six

specimens, of which three are quite perfect. They were found on the reef at Panama. A fragment of a seventh was found on the beach.

3. **Ovula Neglecta.**—Nov. sp.

Shell rather slender: dark violaceous red, sometimes with as light tinge of brown; paler on the lip: smooth, sometimes with microscopic revolving striæ: aperture very narrow in the posterior three-fifths, wider anteriorly; slightly produced at both extremities, and slightly emarginate anteriorly: lip well thickened, nearly straight along the middle: columella acuminate at both extremities, with a longitudinal impressed line, and a callus behind it. Length, .31 inch; breadth, .1 inch.

This species resembles the fig. of *O. rufa*, Sowb, which is represented as much larger, with a broader aperture.

*Station.*—With *O. avena*, which see.

*Habitat.*—Panama.—C. B. A.!

We collected 13 specimens on the reef.

4. **Ovula Variabilis.**—Nov. sp.

Shell very slender: usually white, with a slight tinge of rufous, with the lip opaque white; sometimes of a rich red purple: smooth: aperture not very narrow, a little widened anteriorly, moderately produced, effuse, and slightly inflected posteriorly; obliquely emarginate anteriorly: lip well thickened: columella with a longitudinal keel, acute and obliquely produced anteriorly, posteriorly somewhat biplicate. Length, .54 inch; breadth, .15 inches.

This shell resembles *O. inflexa*, Sowb., but is more slender. Perhaps on comparison of specimens, they may be proved identical. *O. uniplicata*, Sowb., is larger, with a wider aperture.

*Station*.—At the low water mark of the spring tides. The light colored specimens were found on a cream-colored species of *Gorgonia*, and the purple specimens on a *Gorgonia* of the same color. Of 56 specimens, four are purple, and 14 are mature, and 42 immature.

*Habitat*.—San Juan, Lower Calif.—Lt. Green! Gould Mss. Purple shells.

Santa Barbara.—E. Jewett! Gould Mss. Pale, or moderately tinged with purple.

Panama.—C. B. A.!

The 56 specimens were all taken on the reef at Panama. Mr. Cuming found one specimen of *O. inflexum* in the Gulf of Dulce.

5. **Ovula**; sp. Indet.

We abstain from describing this species, because the only two specimens which we have are immature. They resemble *O. variabilis*, but the general form and the aperture are wider, and the shells are covered with excessively minute revolving striae. Except in being striated, they resemble *O. inflexum* Sowb. They were found on the reef.

**CYPRÆA.** Of the seven following species, all appeared to be rare at Panama, except *C. punctulata* and *C. cervinella*.

6. **Cypræa arabicula.**

*Synonymy.*

<i>Cypræa arabicula</i>	Lam. in Ann. Mus. XVI. 100. No. 54.	1810.
————	Lam. An. sans Vert. VII. 399. No. 54. Aug.	1822.
————	Gray in Zool. Journ. I. 78. - - - -	1825.
————	Wood Ind. Test. Supp. pl. 3. f. 7. - -	1828.
————	Gray Deser. Catal. p. 3. No. 13. June	1832.
————	Valenc. in Humb. & Co. Obs. II. 334. -	1833.
————	Sowb. Conch. Ill. pl. 104. f. 77. - -	1841.
————	Kiener Iconog. p. 125. pl. 28. f. 3.	



more important difference is in its form, which is scarcely distinguishable from that of *C. exanthema*. Although there is a prevailing type of coloring in each of these three species, it is rather less constant than the form, so that *C. cervinella* is sometimes liable to be confounded with *C. exanthema*, until we observe the aperture, which is like that of *C. cervina*. The latter is ventricose, rather thinner, with the aperture dilated anteriorly; *C. cervinella* is subcylindric, with the aperture as in *C. cervina*; *C. exanthema* is subcylindric, with the aperture narrow anteriorly, and the right lip more bent upwards anteriorly.

*Station*.—At and just above the low water mark of the spring tides, this species was found under stones which were not less than fifteen or twenty inches in diameter.

*Habitat*.—Caribbean Sea, and shores of Senegal: Kiener.

Indian Ocean? Deshayes.

Indian Ocean; Jay.

Panama, and I. of Taboga: C. B. A!

The words of Kiener are "Habite l'océan des Antilles et les côtes du Sénégal." Since no authority is given for this habitat, and since gross errors of habitat are common in Kiener's Iconography, we must be allowed to regard the statement as wholly erroneous. Some varieties of *C. exanthema*, which is a Caribbean species, might be mistaken for *C. cervinella*, and thus lead to the belief that the latter is also Caribbean. But *C. exanthema* is exclusively Caribbean; *C. cervinella* we believe occurs only in the Panama province, as we have above defined this province; and *C. cervus* probably belongs to the Polynesian zoological province. We have indeed received a specimen of *C. cervinella* from the Sandwich Islands; but at these islands it is a common custom to collect shells from the whale ships. The habitat assigned to the species by Deshayes (copied by Dr. Jay?) is probably due to hearsay testimony.

Probably the "*C. exanthema*" found by Mr. Hinds at the island of Muerte belongs to this species.



We collected 115 specimens, mostly on the reef at Panama, but partly at Taboga.

### 8. *Cypræa punctulata*.

#### *Synonymy.*

<i>Cypræa punctulata</i>	Gray Zool. Journ. I. 387.	- - - -	1825.
—————	Gray Descr. Catal. p. 10. No. 86.	- June	1832.
—————	Pot. et Mich. Gal. Moll. Mus. Douai.		
	I. 484. pl. 35. f. 11, 12.	- - - -	1838.
—————	Sowb. Conch. Ill. pl. 4. f. 20.	- -	1841.
—————	Kiener Iconog. p. 114. pl. 21. f. 2.	- -	
—————	Desh. in Lam. An. sans Vert. X.		
	563. No. 92.	- - - - -	1844.
—————	Reeve Conch. Icon. pl. 13. f. 61.	- - Dec.	1845.

Specimens differ in size and color. Very elegant light colored specimens occur rarely. One shell is 1.3 inch long and .88 inch wide; another is .7 inch long and .48 inch wide.

*Station*.—Under stones; Cuming! Reeve.

We found it with *C. arabicula*, which see.

*Habitat*.—Unknown; Potiez and Michaud.

Panama; Cuming! Sowerby; also Reeve.

New Holland; Gray.

Shores of Peru and of New Holland; Kiener.

Panama; Deshayes; also Jay.

Panama, and I. of Taboga; C. B A!

Gray and Kiener must be in error in citing New Holland as a habitat of this species. We collected 335 specimens, mostly on the reef at Panama, and partly at Taboga.

### 9. *Cypræa pustulata*.

#### *Synonymy.*

	Lister Conch. t. 710. f. 62.	- -	1678.
	Schrot. Einl. Conch. I. 146.	- -	1783.
<i>Cypræa pustulata</i>	Lam. Ann. Mus. XVI. 101. No. 56.	-	1810.

<i>Cypræa pustulata</i> ,	Dillw. Catal. I. 469.	-	-	-	1817.
—————	Wood Ind. Test. pl. 17. f. 63.	-	-	-	1818.
—————	Lam. An. sans Vert. VII. 400. No. 56.	Aug.	1822.		
—————	Sowb. Gen. f. 5.	-	-	-	1824.
—————	Gray in Zool. Journ. I. p. 513.	-	-	-	1825.
<i>Trivia</i>	Gray Deser. Catal. p. 16. No. 138.	June,	1832.		
—————	Penny Cyclop. VIII. 257. f.	-	-	-	1837.
<i>Cypræa</i>	Sowb. Conch. Ill. pl. 102 f. 71.	-	-	-	1841.
—————	Kiener Iconog. p. 128. pl. 2. f. 3.				
—————	Reeve Conch. Icon. pl. 15. f. 76.	Dec.	1845.		
—————	Chenu Lec. Elem. pl. II. f. 11. 12.	-	-	-	1847.

Specimens differ much in size: one is 1.04 inch long, and .6 inch wide; another is .55 inch long, and .33 inch wide. But we have never seen a specimen as large as Mr. Reeve's figure, which is 1.22 inch long and .73 inch wide.

*Station*.—Under stones; Cuming! Reeve.

We found this species alive under large stones, at the extreme low water mark of the spring tides only.

*Habitat*.—Coasts of China, according to Humphreys; Acapulco, according to Lamarek; Dillwyn.

China; Wood.

Western shores of Mexico, at Acapulco; Humboldt and Bonpland! Lamarek.

West coast of Mexico; Say in Catal. Mus.

Panama and Isle of Plata, Mexico; Sowerby.

Pacific Ocean; Gray: also Penny Cyclopaedia.

Western shores of Mexico, near Acapulco; Kiener.

Isle of Plata and Panama, west coast of America;

Cuming! Reeve.

Mazatlan; Melchers! Menke.

Panama; Jay.

Panama; C. B. A!

The citation of China, as a habitat of this species, is an error due probably to hearsay testimony. The Isle of Plata mentioned by Sowerby and by Reeve is probably the island of

that name, off the coast of Guayaquil, near Cape San Lorenzo, in latitude  $1^{\circ} 10'$ . It is only 4 miles long and 1 1-2 broad. Mr. Sowerby's reference to Mexico is unintelligible. Two specimens received by us from a German conchologist, are said to have come from Chile, but this is a very doubtful habitat.

We collected 8 living specimens at the end of the reef at Panama, and 20 dead shells in the vicinity.

### 10. *Cypræa radians*.

#### *Synonymy.*

	Davila Catal. I. pl. 15. f. 1.	1767.
<i>Cypræa radians</i>	Lam. Ann. Mus. XVI. 102. No. 62.	1810.
— <i>oniscus</i>	Wood Ind. Test. pl. 17. f. 58.	1818.
— <i>radians</i>	Lam. An. sans Vert. VII. 402. No. 62.	Aug. 1822.
— —	Gray in Zool. Journ. III. 364.	1828.
— —	Valenc. in Humb. Rec. Obs. II. 335.	1833.
<i>Triria</i> —	Gray Descr. Catal. p. 16. No. 137.	June. 1832.
<i>Cypræa</i> —	Pot. et Mich. Gal. Moll. Mus. Douai. I. 485.	1838.
— —	Sowb. Conch. Ill. pl. 119. f. 146.	1841.
— —	Reeve Conch. Syst. pl. 286. f. 146.	1842.
— —	Kiener Iconog. p. 129. pl. 23. f. 3.	
— —	Lam. An. sans Vert. X. 540. No. 62. Desh. ed.	1844.
— —	Reeve Conch. Icon. pl. f. 117.	Feb. 1846.

In the Supp. of Wood's Ind. Test. *C. oniscus* has received by transposition the name of *C. radians*.

*Station*.—Under stones; Cuming! Reeve.

*Habitat*.—Adriatic; Wood.

Western shores of Mexico, at Acapulco; Humboldt and Bonpland! Lamarek.

Pacific Ocean; Gray.

Acapulco; Humboldt and Bonpland! Valenciennes, Chili; Ravenel in Catalogue.

Western shores of Mexico, near Acapulco; Kiener. Chili, Western shores of Mexico; Potiez and Michaud.

St. Elena; Cuming! Reeve.

St. Elena; Jay.

Mazatlan; Lt. Green! Gould Mss.: also Mus  
Essex Inst.

Panama; E. Jewett! Gould Mss.

Panama; C. B. A!

Wood is obviously incorrect. It may be doubted also whether the species inhabits Chili. We found near Panama only 2 dead specimens.

### 11. *Cypræa rubescens*.

#### *Synonymy.*

*Cypræa rubescens* Gray in Proc. Zool. Soc. Lond. p. 185. Nov. 1832.  
————— Reeve Conch. Icon. pl. 25. f. 141. Feb. 1846.

*Station*.—Under stones; Cuming! Gray: also Reeve.

*Habitat*.—Gallapago Islands; Cuming! Gray: also Reeve.  
Panama; C. B. A!

We found 1 dead but perfect specimen on the beach next east of Panama.

### 12. *Cypræa sanguinea*.

#### *Synonymy*

*Trivia sanguinea* Gray Descr. Catal. p. 14. No. 119. June. 1832.  
*Cypræa* ——— Sowb. Catal. Cyp. p. 12. No. 115. 1841.  
————— Sowb. Conch. Ill. pl. 6. f. 32. 1841.  
————— Desh. in Lam. An. sans Vert. X. 570. No. 102.  
————— Desh. ed. 1844.  
————— Reeve Conch. Icon. pl. 23. f. 127. Feb. 1846.  
————— Chenu Lec. Elem. pl. 10. f. 9, 10. 1847.

*Station*.—Under stones; Cuming! Reeve.

*Habitat* —Panama and Mexico; Sowerby.

Pacific Ocean; Gray: also Deshayes.

St. Elena; Cuming! Reeve.

Mazatlan; Melchers! Menke.

St. Elena ; Jay.

Panama ; E. Jewett ! Gould Mss.

Panama ; C. B. A !

On the beach east of Panama, we found 1 dead but perfect shell of this species.

### 13. *Erato scabriuscula*.

#### *Synonymy.*

*Erato scabriuscula* Gray Descr. Catal. p. 16. No. 140. June. 1832.

*Marginella cypræola* Sowb. in Proc. Zool. Soc. p. 57. March ! 1832.

———— *granum* Kiener Iconog. p. 17. pl. 8. f. 33. 1835.

*Erato scabriuscula* Sowb. Catal. Cyp. p. 15. No. 1. 1841.

———— Sowb. Conch. Ill. pl. 7. f. 45. 1841.

———— Reeve Conch. Syst. pl. 285. f. 7, 10. 1842.

By some mistake a species of *Trivia* is figured for this species in the Penny. Cyclopedia, VIII. 257.

*Station*.—Under stones and in sandy places ; Sowerby.

On the rocks ; Kiener.

We found fine perfect specimens alive under stones near low water mark. Kiener's statement, that they live *on* the rocks, is probably erroneous. Like *Cypræus*, they seek concealment.

*Habitat*.—St Elena ; Gray.

"Sainte Hélène ;" Kiener.

Acapulco ; Cuming ; Sowerby.

St. Elena ; Cuming ! Sowerby.

Acapulco ; Sloat ! Redfield Mss.

Mazatlan ; E. Jewett ! Gould Mss.

Panama ; C. B. A !

We found 1 young, and 3 mature shells on the reef at Panama. Although we turned over many hundred stones in the search, no more could be found.

Our specimens exhibit the pliciform columellar teeth, and the pustulous enamel of the surface in full development. . M.

Kiener's figure represents a mature specimen, probably not an old one, with the columellar teeth not fully developed. We are indebted to Mr. Redfield for the gift of his best specimen, which appears to be full grown and perfect without the pustulous surface. Col. Jewett also collected several specimens of the same variety at Mazatlan. Perhaps the acquisition of this character is the last change which the shell undergoes.

14. **Marginella minor.** Nov. sp.

Shell ovate: white, or pale horn color, subtransparent; rather thin, smooth: spire slightly elevated: whorls about three (?) with a very indistinct suture: aperture linear: lip rather thin at the margin, thickened behind, posteriorly ascending the spire: columella with two well developed plaits at the end, with a third one less developed, and sometimes with a fourth which is more or less indistinct. Length, .09 inch: breadth, .063 inch: some of our specimens, which appear to be full grown, are much smaller.

This little shell closely resembles the Caribbean species, *M. Lavalleana* Orb. (*M. minima* Guild.): the most obvious difference is in the outline, which in the Caribbean species is broader across the upper part of the last whorl, the lip consequently being, at this part, more excurved.

Station.—Unknown.

Habitat —Panama; C. B. A !

We obtained 10 more or less perfect specimens from the calcareous sand, which had been washed up near the sea wall of Panama.

15. **Marginella sapotilla.**

*Synonymy.*

- Marginella sapotilla* Hinds in Proc. Zool. Soc. Lond. p. 74. April, 1844.  
——— ——— Hinds in Voy. Sulph. Moll. pl. 13. f. 10, 11. 1844.  
——— ——— Thes. Conch. p. 383. No 39. pl. 77. f. 150-1. 1846.

**Station.**—From 5 to 13 fathoms sandy mud ; Hinds ! copied by Sowerby.

We found these molluscs on a flat of liquid mud, a little above low water mark. On the surface of this mud they were moving about with great vivacity while the tide was out.

**Habitat.**—Panama ; Hinds ! copied by Sowerby.

Panama ; E. Jewett ! Gould Mss.

Panama ; C. B. A. !

Mr. Hinds calls this species " the American analogue " of *M. prunum* Gm. (syn. *M. coerulescens* Lam.) but Mr. Sowerby assigns *M. prunum* to Panama as its habitat ! A little east of Panama we obtained 40 living specimens of *M. sapotilla*, and also collected many dead shells on the beach above the muddy flats. No specimen of *M. prunum* was found. The latter, however, occurs abundantly in some parts of the Caribbean sea. We have obtained in Jamaica a large number of this species, said to have been taken on the keys south of that Island, and the Hon. Edward Chitty, of J., kindly gave us a parcel said to have been collected at Curaçoa. Independently of the testimony, the other shells, which were mingled with these parcels, were all Caribbean species. Without affirming anything respecting the existence of *M. prunum* on the west coast of Africa,\* we may therefore safely say that it is the Caribbean species,—as *M. sapotilla* is the Pacific species—of tropical America.

\* Mr. J. H. Redfield, the best authority in reference to this genus, informs me that he has examined many parcels of shells collected in the Gambia region, at Cape Palmas, and the I. of St. Thomas, in the Gulf of Guinea, and has never been able to find any evidence that the *M. prunum* inhabits West Africa. Mr. R. suggests that by some means Adanson may have been in error, and that his error has been simply copied by all subsequent authors.

## Family MITRIDÆ.

16. *Mitra funiculata*.*Synonymy.*

*Mitra funiculata* Reeve Conch. Icon. pl. 16. f. 122. Oct. 1844.

————— Reeve Proc. Zool. Soc. London. p. 177. Dec. 1844.

*Station*.—In coral sand at the depth of 14 fathoms; Cuming!  
Reeve.

*Habitat*.—I. of Plata; Cuming! Reeve.

I. of Plata; Jay.

Panama; C. B. A.!

We were indebted to the hermit crabs for 23 specimens in different stages of growth.

17. *Mitra lens*.*Synonymy.*

*Voluta lens* Wood Ind. Test. Supp. pl. 3. f. 25. 1828.

*Tiara foraminata* (Swains. Mss.) Brod. Proc. Zool. Soc. Lond.

p. 194.

Dec. 1835.

*Mitra Dupontii* Kiener Iconog. p. 43. pl. 13. f. 39.

——— *lens* Reeve Conch. Icon. pl. 1. f. 1.

Aug. 1844.

Wood's figure is too wide anteriorly: Kiener's figure is both elegant and inaccurate; the description is much better: Reeve's figure leaves nothing to be desired.

*Station*.—Sandy mud, at a depth ranging from 6 to 14 fathoms; Cuming! Broderip: also Reeve.

*Habitat*.—Unknown; Wood.

Panama, St. Elena, and I. of Plata; Cuming!

Broderip: also Reeve.

The Red Sea; Kiener.

Mazatlan; Melchers! Menke.

Panama, and St. Elena; Jay.



La Paz ; Major Rich! Gould Mss.

Panama ; E. Jewett! Gould Mss.

Panama ; C. B. A. !

We were indebted to the hermit crabs for 24 specimens in different stages of growth.

Kiener's statement is doubtless erroneous.

### 18. *Mitra nucleola*.

#### *Synonymy.*

<i>Mitra nucleola</i>	Lam. in Ann. Mus. XVII. 218. No. 64.	1811.
————	Lam. An. sans Vert. VII. 320. No. 64.	Aug. 1822.
————	Kiener Iconog. p. 84. pl. 26. f. 83. var. excl.	
————	Pot. & Mich. Gal. Moll. Mus. Douai. I. 499. pl. 35. f. 15. 16.	1838.
————	Kust. Conch. Cab. p. 112. No. 95. pl. 17. f. 18. 19?	1844.
————	Lam. An. sans Vert. X. 337. No. 64. (Desh. ed.)	1844.
————	Reeve Conch. Icon. pl. 28. f. 226.	Jan. 1845.

We had at first some doubts of the identity of our specimens with the Lamarckian species, but the differences between their form and that of Mr. Reeve's figure are precisely similar to those between the half-grown, and the mature *M. granulosa* of the Caribbean seas. M. Kiener's remarks leave no room for doubt. Our shells, being fresh, are of a deep brown, like fresh specimens of the Caribbean species.

*Station*.—Unknown.

*Habitat*.—Unknown ; Lamarck : also Potiez and Michaud : also Reeve.

Indian Ocean, seas of Java : Kiener.

Panama ; C. B. A. !

We obtained 11 specimens, none of which are quite mature. Kiener's statement of habitat is probably incorrect.

Kiener remarks that this shell is only a variety of *Mitra granulosa* ; Reeve says that there is "no analogy whatever,"

between these species. We will venture to add that while the species are clearly distinct, they constitute one of those interesting pairs of analogues, which inhabit opposite sides of the Isthmus of tropical America.

*M. granulosa* we believe to be exclusively a Caribbean species, although Kiener says "Habite les mers de l'Inde et de la Nouvelle Zélande, de la Guadeloupe, de la Trinité et du Mexique."

19. **Mitra solitaria.** Nov. sp.

Shell rather slender, fusiform: of a very deep blackish brown, less deep in the aperture, and quite pale on the plaits: with very numerous small transverse ribs, which are obsolete anteriorly, and which are granulated by revolving striæ, that are obsolete in the interspaces posteriorly, and are strongly developed anteriorly, with microscopic incremental striæ; apex acute: whorls ten, moderately convex, slightly shouldered above, with a moderately impressed suture: aperture long, with a rather short canal: labrum thick, with numerous sharp plaits inside, with a sinus near the posterior end: columella with four plaits. Length .68 inch; breadth, .23 inch; length of aperture, .34 inch.

*Station*.—Under stones near low water mark we found this elegant and rare shell.

*Habitat*.—Panama; C. B. A.!

We found a single specimen on the reef.

20. **Mitra tristis.**

*Synonymy.*

*Mitra tristis* Brod. in Proc. Zool. Soc. Lond. p. 194. Dec. 1835.  
——— Reeve Conch. Icon. pl. 15. f. 114. Sept. 1844.

*Station*.—In sandy mud at the depth of 6 to 10 fathoms; Cuming! Broderip; also Reeve. We found sev-

eral individuals alive under stones near low water mark.

**Habitat.**—St. Elena, and the Gallapago Islands; Cuming!

Broderip: also Reeve.

St. Elena; Jay.

Taboga; C. B. A.!

We obtained 28 specimens, of which 20 are immature, and only 3 are both mature and perfect.

### Family PURPURIDÆ.

**TEREBRA.** Although 11 species of this genus were collected, the number of specimens is small, and they are more or less imperfect. Probably they all, like most of their congeners, and as is well known of several of these species, live only below low water mark. 5 of the species may be new; but as our specimens are not perfect and not sufficiently numerous for distribution, we shall leave them undescribed.

#### 21. *Terebra elata*.

##### *Synonymy.*

*Terebra elata* Hinds in Proc. Zool. Soc. Lond. p. 156. Dec. 1843.  
 ———— Hinds in Sowb. Thes. Conch. p. 177. No. 78.  
 pl. 45. f. 68. 69. - - - - 1844.

**Station.**—In 15 fathoms, coarse sand; Hinds!

**Habitat.**—Bay of Montija; Hinds!

Montija; Jay.

Panama; C. B. A.!

We obtained 4 specimens.

#### 22. *Terebra larvæformis*.

##### [*Synonymy.*

*Terebra larvæformis* Hinds in Proc. Zool. Soc. Lond.  
 p. 155. - - - - Dec. 1843.

*Terebra larvaformis* Hinds in Sowb. Thes. Conch. p. 176.  
No. 73. pl. 43. f. 46. 47. - - - 1844.

*Station*.—In from 6 to 15 fathoms, sandy mud ; Hinds!

*Habitat*.—St. Elena, Monte Christi ; Hinds!

Monte Christi ; Jay.

Panama ; C. B. A.!

We found only 2 specimens.

### 23. *Terebra robusta*.

#### *Synonymy*.

*Terebra robusta* Hinds in Proc. Zool. Soc. Lond. p. 149. Dec. 1843 -  
——— Hinds in Zool. Voy. Sulph. Moll. p. 32. 1844 -  
——— Hinds in Sowb. Thes. Conch. p. 152. No. 5.  
pl. 42. f. 35. - - - - - 1844 -

*Station*.—In from 4 to 18 fathoms, sandy mud ; Hinds!

*Habitat*.—West coast of America, between 8° 57' and 21° 32'

N. lat. ; namely, at Panama, Gulf of Nicoya,

Gulf of Papagayo, and San Blas ; Hinds!

Gulf of Nicoya ; Jay.

Panama ; E. Jewett ! Gould Mss.

Panama ; C. B. A.!

We collected 5 specimens.

### 24. *Terebra specillata*.

#### *Synonymy*.

*Terebra specillata* Hinds in Proc. Zool. Soc. Lond. p. 155. Dec. 1843  
——— Hinds in Zool. Voy. Sulph. Moll. p. 34. 1844  
——— Hinds in Sowb. Thes. Conch. p. 163. No. 35.  
pl. 44. f. 96. - - - - - 1844

*Station*.—7 fathoms, sandy mud ; Hinds!

*Habitat*.—San Blas ; Hinds!

San Blas ; Jay.

Panama ; C. B. A. !

We collected 12 specimens in various degrees of preservation.

## 25. *Terebra tuberculosa*.

### *Synonymy.*

*Terebra tuberculosa* Hinds in Proc. Zool. Soc. Lond. p. 154. Dec. 1843.

————— Hinds in Zool. Voy. Sulph. Moll. p. 34. 1844.

————— Hinds in Sowb. Thes. Conch. p. 175.

No. 72. pl. 43. f. 48. . . . . 1844.

*Station*.—From 4 to 11 fathoms ; Hinds !

*Habitat*.—Panama, Gulf of Papagayo, and San Blas ; Hinds !

Panama ; C. B. A. !

Only 1 specimen was found.

## 26. *Terebra varicosa*.

### *Synonymy.*

*Terebra varicosa* Hinds in Proc. Zool. Soc. Lond. p. 152. Dec. 1843.

————— Hinds in Zool. Voy. Sulph. Moll. p. 32. - 1844.

————— Hinds in Sowb. Thes. Conch. p. 163. No. 37.

fig. on same page. - - - 1844.

*Station*.—23 fathoms, mud ; Hinds !

*Habitat*.—Gulf of Papagayo ; Hinds !

Panama ; C. B. A. !

We obtained only 1 specimen.

27. *Terebra* (*a*).—Like *T. specillata*, but more finely sculptured : 2 specimens.

28. *Terebra* (*b*).—A slender brown species : 5 specimens.

29. *Terebra* (*c*).—Small, olivaceous, with a dingy white band next above the suture : 1 specimen.

30. *Terebra* (*d*).—A small very delicately and sculptured shell : 1 specimen.

31. *Terebra* (*e*).—1 very imperfect specimen.

**OLIVA.** In searching for species of this genus, I had but little success, although all the sands near Panama were visited, from the low water mark of the spring tides upwards. Of the ten species which were obtained, only one was found alive. Probably the species appear chiefly at certain seasons. The one which was found alive in countless myriads, was seen during only a part of my stay in Panama.

### 32. *Oliva angulata*.

#### *Synonymy.*

	Davila Catal. I. pl. 15. f. F.	- - -	1767.
	Martini Conch. Cab. II. 164. pl. 47.		
	f. 499. 500.	- - -	1773.
	Schrot. Einl. Conch. I. 248.	- - -	1783.
<i>Voluta oliva</i> var. ♂	Gmel. in Linn. Syst. Nat. p. 3440.	- - -	1788.
<i>Oliva angulata</i>	Lam. in Ann. Mus. XVI. 310. No. 6.		1810.
<i>Voluta incrassata</i>	Dillw. Catal. I. 516. No. 35.	- - -	1817.
	Wood Ind. Test. pl. 19. f. 35.	- - -	1818.
<i>Oliva angulata</i>	Lam. An. sans Vert. VII. 420.		
	No. 6.	- - -	Aug. 1822.
	Encyc. Meth. pl. 363. f. 6.	- - -	1824.
	Desh. in Encyc. Meth. Vers. III. 649. No. 9.		1832.
	Duel. Mon. Oliva. pl. 17. f. 9. 10.	- - -	1835.
	Küst. Conch. Cab. pl. 2. f. 1. 2.	- - -	1840.
	Duel. in Chenu. pl. 18. f. 9. 10.	- - -	1843.
	Lam. An. sans Vert. X. 607. No. 6.		
		Desh. Ed.	1844.
	Reeve Elem. Conch. pl. 1. f. 4. also pl. D.		1846.
	Reeve Conch. Icon. pl. 1. f. 1. <i>Optimè</i> .		Nov. 1850.

*Station*.—In sandy mud, at the depth of 9 fathoms; Cuming!  
Reeve.

*Habitat*.—Unknown; Wood: Lamarek.

Peru; Deshayes.

Gulf of Nicoya, Central America; Cuming!

Reeve: also Duclou.

Bay of Magdalena ; Duclos.

Mazatlan ; Melchers ! Menke.

Real Llejos ; Jay.

Bay of Panama ; C. B. A. !

The text of Duclos (in Chenu Ill. Conch.) is somewhat ambiguous ; " Habite la baie de la Madeleine, le golfe de Nicoyo, Costa Rica, Amérique centrale, d'où M. Cuming l'a rapportée." The Bay of Magdalena is much farther north than Costa Rica, on the outside of the peninsula of California in latitude 24° 30' N. Probably a different punctuation should have been used, so as to indicate two distinct localities.

We obtained 17 fine large specimens in the fruit shanty before mentioned. They were said to have been taken " down the bay." Their condition, and the other shells which were with them, fully confirmed the statement.

### 33. *Oliva araneosa*.

#### *Synonymy.*

	Martini Conch. Cab. 11. 167. pl. 48. f. 509. 510. 1773.	
<i>Oliva araneosa</i>	Lam. in Ann. Mus. XVI. 315. No. 19.	- 1810.
— — — — —	Lam. An. sans Vert. VII. 424. No. 19.	Aug. 1822.
— — — — —	Lam. in Encyc. Meth. pl. 363. f. 1.	- - 1824.
— — — — —	Lam. An. sans Vert. X. 614. No. 19.	Desh. Ed. 1844.
— — — — —	<i>reticularis</i> Reeve Conch. Icon. pl. 10. f. 16g. 16d.	
	<i>alt. excl.</i>	- - - - - Aug. 1850.

If Lamarck and Duclos have sometimes gone into the one extreme of excessive multiplication of species, Mr. Reeve has, we fear, in a rare instance of error, gone to the opposite extreme, in uniting with *O. reticularis*, *O. araneosa*, and *O. venulata* of Lam., and Duclos' species *O. Timoria*, *O. obesina*, and *O. pindarina*. Mr. Reeve's fig. 16a. represents well the common Caribbean species, *O. reticularis*, which inhabits the islands and main land around the Caribbean sea. Fig. 16 i

resembles a variety of the same species, which Mr. Redfield has received from Carthagenæ. But figs. 16*d* and 16*g* represent the kindred type of the Pacific shore. This we suppose to be *O. araneosa* of Lamarck. The difference between the Caribbean and the Pacific types is somewhat less in value than the average difference between species. But we have elsewhere shown, (Cont. Conch. p. 191,) that it is impossible to make all the species of exactly equal value. Those figures on Mr. Reeve's pl. X, which we have not before referred to in this paragraph, represent probably one or two other species of the Pacific coast.

In consequence of this union of distinct types, Mr. R. gives as the habitat of *O. reticularis*, "Gulf of California; Donnet. I. of Granada, West Indies; J. Cuming."

*Station*.—Unknown.

*Habitat*.—South Seas? Lamarck.

Bay of Panama; C. B. A.!

In the fruit shanty we found 1 specimen, in company with other shells, all of which had been taken near Panama.

31. ***Oliva inconspicua*.** Nov. sp.

Shell rather slender: white: smooth: spire about as long as the aperture: apex rather obtuse: whorls six, with a well impressed suture, slightly convex: aperture acuminate in the upper half, subrectangular in the lower half: labrum thin: anterior notch very slight, wide.

Mean divergence about  $30^{\circ}$ : in another specimen nearly  $40^{\circ}$ ; length .15 inch; breadth .055 inch.

*Station*.---Unknown.

*Habitat*.—Panama; C. B. A.!

We obtained only 3 mature specimens and one immature, in picking over several quarts of fine drift materials gathered on the shore near the city wall.



A kindred undescribed species occurs in Jamaica. Like the above and like most of the minute rare tropical species, it appears to have escaped the notice of collectors.

### 35. *Oliva pellucida*.

#### *Synonymy.*

*Oliva pellucida* Reeve Conch. Icon. pl. 27. f. 85. - Nov. 1850.

*Station*.—Unknown.

*Habitat*.—Unknown; Reeve.

Panama; C. B. A.!

We obtained one specimen, which is about three-fifths as large as Mr. Reeve's specimen.

### 36. *Oliva porphyria*.

#### *Synonymy.*

	Gualt. Test. pl. 24. f. P. - - -	1742.
	D'Argenv. Conch. p. 285. pl. 16. f. K. - - -	1742.
	D'Argenv. Conch. p. 243. pl. 13. f. K. - - -	1757.
	Knorr. Vergn. I. pl. 15. f. I. - - -	1757.
<i>Voluta porphyria</i>	Linn. Syst. Nat. (Ed. 10.) I. 729.	
	No. 349. - - - - -	1758.
— — — — —	Linn. Syst. Nat. (Ed. 10. alt.) I. Pars.	
	II. p. 1187. No. 398. - - -	1767.
	D'Argenv. Conch. p. 201. pl. 13. f. K. - - -	1772.
— — — — —	Martini Conch. Cab. II. 157. pl. 47.	
	f. 485-6. pl. 47. f. 498. - - -	1773.
<i>Panama or Camp Olive</i>	Da Costa Elem. Conch. pp. 189. 291.	
	pl. 5. f. 4. - - - - -	1776.
	Favanne's D'Argenv. II. 818-822. pl.	
	19. f. K. - - - - -	1780.
<i>Voluta porphyria</i>	Born Mus. Cæs. p. 212. - - -	1780.
— — — — —	Schröt. Einl. I. 201. No. 7. - - -	1783.
— — — — —	Gmel. in Linn. Syst. Nat. p. 3438.	
	No. 16. - - - - -	1788.
<i>Oliva</i> — — — — —	Lam. Syst. An. sans Vert. p. 75. - - -	1801.

<i>Oliva porphyria</i>	Cubieres' Hist. Coq. p. 69. pl. 7. f. 4.	
—	Roissy in Buff. Moll. V. 429. No. 1.	
	pl. 56. f. 6. - - - -	1803.
<i>Voluta</i> —	Turt. in Linn. Syst. Nat. IV. 361.	1806.
<i>Oliva</i> —	Lam. in Ann. Mus. XVI. 309. No. 1.	1810.
— <i>Panamensis</i>	seu <i>porphyrius</i> Montf. Conch. Syst. II.	
	387. f. ad p. 386. - - -	1810.
— <i>porphyracea</i>	Perry Conch. pl. 41. f. 3. -	Jan. 1811.
<i>Voluta porphyria</i>	Brooke Introd. Conch. pl. 6. f. 68.	1815.
—	Dillw. Catal. 1. 510. No. 29. -	1817.
<i>Oliva</i> —	Schum. Nouv. Syst. p. 243. -	1817.
<i>Voluta</i> —	Wood Ind. Test. pl. 19. f. 29. -	1818.
<i>Oliva</i> —	Lam. An. sans Vert. VII. 418.	
	No. 1. - - - -	Ang. 1822.
—	Children's Lam. Gen. pl. 5. vol. 16.	
	f. 209. - - - -	1823.
—	Sowb. Gen. pl.—. f. 1. - - -	1824.
—	Lam. in Encyc. Meth. pl. 361. f. 4.	1824.
—	Blainv. Malac. pl. 30. f. 4. - -	1825.
—	Roux Icon. Conch. Liv. I. p. 4. pl. 3.	
	f. 6. - - - -	1828.
—	Stark Elem. Nat. Hist. I. 25. -	1828.
—	Desh. in Encyc. Meth. Vers. III. 648.	
	No. 8. - - - -	1832.
—	Ducl. Monog. Oliva. pl. 24. f. 1-5.	1835.
—	Pot. et Mich. Gal. Moll. Mus. Douai.	
	I. 471. - - - -	1838.
—	Küst. Conch. Cab. p. 10. pl. 2. f. 5.	
	pl. 6. f. 1. 2. - - - -	1840.
—	Reeve Conch. Syst. pl. 273. f. 1.	1842.
—	Hanley Conch. Book Spec. p. 130.	1842.
—	Ducl. in Chenu Ill. Conch. pl. 1. f. 1-5.	1843.
—	Lam. An. sans Vert. X. 605. No. 1.	
	Desh. ed. - - - -	1844.
—	Reeve. Conch. Icon. pl. 1. f. 2.	Nov. 1850.
—	Heck Icon. Encyc. pl. 75. f. 125.	
	Baird ed. - - - -	1851.
—	Woodward Man. Moll. p. 116. pl. 6.	
	f. 16. - - - -	1851.

*Station.*—In sandy mud at low water; Cuming! Reeve.

*Habitat*.—Unknown; Linnæus, 1758.

Brazil; Linnæus, 1767: also Gmelin: also Turton:  
also Say in Catal. of his Mus.

West Indies and coasts of South America; Dillwyn.

West Indies; Wood.

Seas of South America; shores of Brazil; Lamarck:  
also Roux: also Potiez and Michaud: also  
Küster.

“L'Olive de Panama;” Lamarck: also Blainville.  
South America; Ravenel in Catalogue.

Panama; Cuming! Reeve.

Panama; Jay: also Woodward.

Mazatlan; Melchers! Menke.

La Paz, Lower California; Lt. Green! Gould Mss.

Bay of Panama; C. B. A.!

Linnæus, Dillwyn, Wood, and Lamarck are obviously in an error, which has been successively copied from the former. But the common name of the species, which we find in most of the old authors, indicates the true habitat.

Unfortunately none of my rambles were rewarded with a specimen in any condition. Two or three were seen in the fruit shanty among other shells, all of which inhabit the vicinity of Panama.

Two intensely colored specimens in the Mus. Amh., from an unknown habitat, are  $4\frac{3}{4}$  in. long and 2 in. wide.

### 37. *Oliva semistriata*.

#### *Synonymy.*

<i>Oliva semistriata</i>	Gray, Zool. Beech. Voy. pl. 36. f. 10.	1839.
—	Siebold, Wieg. Archiv. p. 210.	1839.
—	Reeve Conch. Icon. pl. 23. f. 61.	Oct. 1850.

*Station*.—“Moving about by hundreds, with great rapidity, in the wet sand;” Cuming! Reeve.

*Habitat*.—Salango, West Columbia; Cuming! Reeve.

Panama; C. B. A.!

We obtained a few specimens, which were occupied by hermit crabs, on the reef at Panama, near low water mark. In the fruit shanty we purchased 175 specimens, which appeared to have been taken alive.

### 38. *Oliva testacea*.

#### *Synonymy*.

<i>Oliva testacea</i>	Lam. in Ann. Mus. XVI. 324. No. 51.	-	1810.
— — — —	Lam. An. sans Vert. VII. 435. No. 51.	Aug.	1822.
— — — —	Valen. in Humb. Rec. Obs. II. 334.	-	1833.
— — — —	Duclos in Chenu Conch. III. pl. 3. f. 17. 18. (f. 19.		
	20. excl.)	- - - -	1843.
— — — —	Lam. An. sans Vert. X. 627. No. 51. Desh. Ed.		1844.
— — — —	Reeve Conch. Icon. pl. 18. f. 36.	-	Sept. 1850.

*Station*.—In sandy mud at a depth of about 6 fathoms; Cuming! Reeve.

*Habitat*.—The South Sea, on the shores of Mexico; Humboldt and Bonpland! Lamarek.

Acapulco; Humboldt and Bonpland! Valenciennes.

Mexico and California; Duclos.

Mazatlan; Melchers! Menke.

Panama; Jay.

Real Llejos, Mexico; Cuming! Reeve.

Panama; C. B. A.!

Duclos says, "Habite le Mexique pour sa plus grande taille, la Californie pour sa plus petite, et la Nouvelle Hollande pour la variété blanche." The variety (f. 19. 20.) is evidently a distinct species.—Mr. Reeve's punctuation seems to imply that Real Llejos is in Mexico, but since Real Llejos is not in Mexico, the latter must be another habitat on the authority of Mr. Cuming, unless Mr. R. has fallen into a geographical error.

On the sand beach, next west of Panama, we collected 20 dead but entire specimens.

### 39. *Oliva undatella*.

#### *Synonymy.*

<i>Oliva undatella</i>	Lam. in Ann. Mus. XVI. 326. No. 55.	-	1810.
— — — — —	Lam. An. sans Vert. VII. 438. No. 58.	Aug.	1822.
— — — — — <i>tenebrosa</i>	Wood. Ind. Test. Supp. pl. 4. f. 38.	- -	1828.
— — — — — <i>undatella</i>	Duclos. Mon. Oliva. pl. 5. f. 5-10.	- -	1835.
— — — — —	Gray, Zool. Beech. Voy. pl. 36. f. 23, 27.	-	1839.
— — — — —	Duclos in Chenu Ill. Conch. pl. 6. f. 5-10.		1843.
— — — — —	Lam. An. sans Vert. X. 630. No. 58.	-	1844.
— — — — —	Reeve Conch. Icon. pl. 25. f. 73.	-	Oct. 1850.

Wood's accurate figure appears to have been overlooked by most authors.

*Station.*—In sand and on mud banks at low water; Cuming! Reeve.

*Habitat.*—Unknown; Wood.

Acapulco; Humboldt and Bonpland! Lamarck;  
Duclos.

West coast of Mexico; Say in Catal. Mus.

Pacific; Ravenel in Catalogue.

Mazatlan; Melehers! Menke.

Acapulco; Jay.

Bay of Panama; Cuming! Reeve.

Panama; E. Jewett! Gould Mss.

Panama; C. B. A.!

For this species I was indebted wholly to the hermit crabs. 15 specimens were obtained near a sandy spot on the reef, near low water mark. They are all of one pattern of coloring, intermediate between Wood's figure and 73 *b* of Reeve.

40. *Oliva venulata*.*Synonymy.*

<i>Voluta ispidula</i> var. $\beta$ (pars)	Born. Mus. p. 216.	- -	1780.
	Martini Conch. II. 158. pl. 46. f. 488.	- -	1773.
<i>Oliva venulata</i>	Lam. in Ann. Mus. XVI. 313. No. 13.	- -	1810.
— — — — —	Lam. An. sans Vert. VII. 422. No. 13.	- -	Aug. 1822.
— — — — —	Lam. in Encyc. Meth. pl. 361. f. 5.	- -	1824.
— — — — —	Desh. in Encyc. Meth. vers. III. 650.	- -	- -
	No. 12.	- - - -	1832.
— — — — —	Pot. et Mich. Gal. Moll. Mus. Douai. I.	- -	- -
	472.	- - - -	1838.
— — — — —	Küst. Conch. Cab. pl. 6. f. 5.	- -	1840.
— — — — —	Lam. An. sans Vert. X. 611. No. 13.	- -	- -
	Desh. Ed.	- - - -	1854.
— — — — —	<i>reticularis</i> var. Reeve Conch. Icon. pl. 10. f. 16b. (alt. excl.)	- - - -	Aug. 1850.

Our specimen more resembles *O. splendidula* as figured in the Ill. Conch. of Chenu, than *O. venulata* in the same work. We think, however, that it is the species, which is figured in the Encyc. and by Reeve as above. The principal difference between this shell and *O. araucosa* is in the short dark brown bent lines of the former.

*Station*.—Unknown.

*Habitat*.—Unknown; Lamarek; also Potiez and Michaud.

Mazatlan; Melchers! Menke.

La Paz; Lt. Green! Gould Mss.

Bay of Panama; C. B. A.!

Duclos (in Chenu) says of his *O. venulata*, which probably belongs to a different species from ours, “Habite la mer des Indes.” In the fruit shanty we found 1 specimen among other shells, all of which are known to inhabit the Bay of Panama.

41. *Oliva volutella*.*Synonymy.*

<i>Oliva volutella</i>	Lam. in Ann. Mus. XVI. 322. No. 43.	-	1810.
—	Lam. An. sans Vert. VII. 432. No. 43.	Aug.	1822.
—	Swains. Zool. Ill. 2nd ser. pl. 40. f. 1.	-	1823.
— <i>cærulea</i>	Wood Ind. Test. supp. pl. 4. f. 36.	-	1828.
— <i>volutella</i>	Valenc. in Humb. Rec. Obs. II. 334.	-	1833.
—	Ducl. Mon. Oliva. pl. 6. f. 7-14.	-	1835.
—	Gray in Beech. Voy. p. 131.	-	1839.
—	Sowb. Man. No. 561. f. 560.	-	1839.
—	Duclos in Chenu Ill. Conch. pl. 7. f. 7-14.		1843.
—	Souleyet (?) Voy. Bonite. Moll. pl. 45. f. 22-24.		1844?
—	Lam. An. sans Vert. X. 623. No. 43. Desh. Ed.		1844.
—	Reeve Conch. Icon. pl. 21. f. 54.	-	Oct. 1850.

*Station*.—On mud banks at low water ; Cuming ! Reeve.

This species we found alive in vast numbers, over an extent of many acres, on the sand beach west of the city of Panama. They were most numerous where the beach had a gentle slope, about midway between high and low water mark. Some time after the retreat of the tide they were found crawling about with much vivacity on the wet sand. The shell, while the animal was moving, was wholly covered with the mantle, and the mantle was entirely concealed with a thick coat of sand. When the first wave of the returning tide struck them, washing off their coats of sand, they instantly buried themselves. Frequently, however, I passed over this spot without seeing any of them. They were also found, but in less numbers, just above the low water mark of the neap tides, on sandy flats near the beach above mentioned.

*Habitat*.—Shores of Mexico ; Humboldt and Bonpland ! Lamarck.

Isthmus ; Swainson.

Unknown ; Wood.

Acapulco; Humboldt and Bonpland! Valenciennes.  
 West coast of Mexico; Say in Catal. Mus.  
 Mexico, California, Panama; Duclos.  
 Panama; Cuming! Reeve: also Mörch.  
 Panama; Jay.  
 Panama; C. B. A.!

We collected 4,500 specimens.

#### 42. *Planaxis planicostata*.

##### *Synonymy.*

<i>Planaxis planicostata</i>	Sowb. in Tank. Catal. No. 1418. App. p. 13.	1825.
<i>Buccinum planaxis</i>	Wood Ind. Test. Supp. pl. 4. f. 15.	1828.
<i>Planaxis canaliculata</i>	Duval in Rev. Zool. - - -	Apr. 1840.
—————	Trosch. in Wieg. Archiv. p. 271.	1840.
————— <i>planicostata</i>	Reeve Elem. Conch. pl. B. f. 17.	1846.

The epidermis of this shell is exceedingly thick and tenacious, and of a dingy olive green. Beneath the epidermis the shell is black, but near the apex and in faded specimens the color is brown. All the specimens at Panama and in one spot at Taboga belong to a large variety, and are often more than an inch long. The others at Taboga were mostly from .6 inch to .7 inch long.

*Station*.—Under stones between high water and half tide level.

*Habitat*.—Gallapago Is.; Sowerby: also Duval: also Jay.  
 Panama; E. Jewett! Gould Mss.  
 Taboga and Panama; C. B. A.!

At Taboga in incredible numbers: less common on the reef at Panama. We collected about 1200 specimens.



**NASSA.** Mr. Powis has described in the Proceedings of the Zoological Society of London, 1835, pp. 95, 96, seven species of this genus from Panama and from other parts of the same Zoological province. We obtained fourteen species, two (perhaps three) of which answer to the descriptions by Mr. Powis.

43. **Nassa canescens.** Nov. sp.

Shell rather long, ovate conic: pale brown on all the raised portions of the surface, with the interspaces pale gray: with ten or eleven very prominent narrow ribs, and many raised spiral lines, which are not interrupted by the ribs, and of which two on the middle of the whorls and some anteriorly are larger: spire with the outlines nearly rectilinear: apex acute: whorls eight or nine, subangular in the middle, with a well impressed suture; last whorl moderately ventricose, anteriorly spirally subcanaliculate: aperture subelliptical: labrum subacute, much thickened by a varix a little behind the edge, finely grooved within: labium finely wrinkled, a little dilated but not appressed: notch large and deep.

Mean divergence about  $50^{\circ}$ ; length 1.05 inch; breadth .6 inch; length of spire .6 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A !

1 specimen was obtained.

44. **Nassa collaria.** Nov. sp.

*Synonymy.*

*Nassa collaria*, Gould MSS.

Shell ovate conic: dingy white, with a dark reddish brown band on each side of the whorl: with, on each whorl, about ten or twelve ribs, which are smaller and more approxi-

mate but not obsolete on the last part of the last whorl; with many spiral raised lines, with the intersections subnodulous: spire with the outlines nearly rectilinear: apex acute: whorls seven, slightly convex, with a distinct suture; last whorl with a minute spiral canal anteriorly: aperture subelliptical: labrum subacute, thickened with a stout varix, within crenulated coarsely and unequally: labium a little thickened, not appressed: with a deep notch.

Mean divergence about  $50^{\circ}$ ; length .38 inch: breadth .21 inch; length of spire .23 inch.

Var.  $\alpha$ ; smaller (.23 inch long); with the lower fascia much broader, and darker anteriorly.

*Station*.—Unknown.

*Habitat*.—Panama; (var.  $\alpha$ ); E. Jewett! Gould Mss.

Panama; C. B. A.!

We obtained 4 specimens of the type, and one of the variety.

45. ***Nassa corpulenta*. Nov. sp.**

Shell ovate conic, very robust: spirally banded with white and brown, sometimes mostly white, sometimes mostly brown, with a broad white stripe below the middle of the last whorl, white in and about the aperture: with, on each whorl, about eleven narrow ribs, which are traversed by spiral raised lines: spire with the outlines rectilinear or slightly concave: apex acute: whorls nine, moderately convex, with a well impressed suture; last whorl very large and ventricose, spirally canaliculate anteriorly: aperture subelliptical, contracted: labrum subacute thickened with a very stout varix, within coarsely sulcate: labium wrinkled, a little thickened but not appressed: notch large and deep. *N. festiva* Powis must resemble this shell, and possibly may be identical with it.

Mean divergence about  $46^{\circ}$ ; length .88 inch; breadth .63 inch; length of spire .46 inch.

*Station*.—Unknown.

*Habitat*.—Panama ; E. Jewett ! Gould Mss.

Taboga and Panama ; C. B. A. !

17 specimens were obtained.

46. **Nassa gemmulosa**.—Nov. sp.

Shell ovate conic, ventricose : whitish, more or less tinged with yellowish brown ; with a narrow spiral stripe of brown at the upper margin of the whorls, and another anteriorly ; with two or three minute spiral brown lines on the middle of the last whorl, which are interrupted by the nodules : with about fifteen or sixteen minute ribs on each whorl, and spiral raised lines, of which three or four are visible on the spire ; with the intersections developed into well rounded nodules : spire with the outlines rectilinear : apex very acute : whorls seven, a little convex, with a distinct suture ; last whorl spirally subcanaliculate anteriorly : labrum subacute, well thickened by a varix, coarsely ridged within : labium much arcuated, a little thickened but not appressed : notch deep.

Mean divergence about  $56^{\circ}$  ; length .25 inch ; breadth .17 inch ; length of spire .15 inch.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

1 specimen was obtained.

47. **Nassa glauca**.—Nov. sp.

Shell ovate conic, ventricose : glaucous or olivaceous, with a broad spiral stripe of dingy white a little above the suture, whitish about the aperture, deeply colored in the anterior spiral canal : with, on each whorl, about ten ribs, of which the last two or three next to the aperture are nearly obsolete ; with many spiral striæ, which traverse the ribs : spire with the outlines nearly rectilinear : apex acute : whorls eight,

moderately convex, with a distinct suture ; last whorl ventricose, with a narrow deep spiral canal anteriorly : aperture subelliptical : labrum subacute, thickened with a stout varix, within with about five acute spiral ridges : labium well thickened, not appressed : notch deep.

Mean divergence about  $55^{\circ}$  ; length .5 inch ; breadth .31 inch ; length of spire .28 inch.

Var.  $\alpha$  ; with the color nearly black.

*Station*.—Unknown.

*Habitat*.—Taboga ; C. B. A. !

32 specimens were collected.

#### 48. *Nassa luteostoma*.

##### *Synonymy*.

<i>Nassa</i>	<i>luteostoma</i>	Brod. & Sowb. in Zool. Journ. IV. 376.	1829.
<i>Buccinum</i>	————	Kiener Iconog. p. 110. pl. 30. f. 1.	
<i>Nassa</i>	<i>xanthostoma</i>	Gray in Zool. Beech. Voy. pl. 36. f. 3.	
	( <i>parva</i> .)	- - - - -	1839.
————	————	Souleyet (?) Voy. Bonite. Moll. pl. 41.	
		f. 5-7. - - - - -	1841
————	<i>luteostoma</i>	Reeve Elem. Conch. pl. 3. f. 11.	1846.
————	<i>xanthostoma</i>	Mrs. Gray Moll. pl. 85a. f. 5. ( <i>soft parts</i> .)	1853.

*Station*.—On sand, usually not far below high water mark in places where water is running during the recess of the tide : also in similar places not far above low water mark.

*Habitat*.—Senegal ; Kiener : also Jay.

Real Llojos, and Acapulco ; Lesson.

Mazatlan ; Melchers ! Menke.

Panama ; E. Jewett ! Gould Mss.

Panama ; C. B. A. !

We collected 330 specimens, mostly near the sea wall of Panama. “ M. Kiener indique le Senegal pour patrie à cette

coquille ; il y a, sans doute, erreur." Lesson in Rev. Zool. Aug. 1842.

#### 49. *Nassa nodifera*.

##### *Synonymy.*

*Nassa nodifera* Powis in Proc. Zool. Soc. Lond. p. 95. June. 1835.

This shell has distant fine spiral striæ, which are usually obsolete on the middle of the whorls. Some specimens are ornamented with spiral lines of dark brown, and rarely the whole shell, except the aperture, is dark brown. Mr. Powis disposes of the coloration with the single word *albescente*, but otherwise his brief description corresponds exactly with our shells.

*Station*.—In coral sand, in from 6 to 10 fathoms ; Cuming !  
Powis.

*Habitat*.—Gallapago Islands and the shores of Panama ;  
Cuming ! Powis.  
Taboga ; C. B. A. !

40 specimens were collected.

#### 50. *Nassa pagodus*.

##### *Synonymy.*

*Buccinum decussatum* Kiener (nec Linn. nec Lam.) p. 109. No.

106. pl. 30. f. 3. - - -

*Triton pagodus* Reeve in Proc. Zool. Soc. Lond. p.

121. - - - July. 1844.

— — — Reeve Conch. Icon. pl. 20. f. 97. Aug. 1844.

The colors are sometimes more intense than in Mr. Reeve's figure. From M. Petit we have received two specimens labelled *B. decussatum* Kiener ; Payta.

*Station*.—Unknown.

*Habitat*.—Atlantic Ocean, on the shores of Africa; Kiener.

“Bay of Montija, West Columbia;” Cuming!  
Reeve.

Payta; Petit in sched.

Taboga and Panama; C. B. A.!

22 specimens were collected.

51. **Nassa Panamensis**.—Nov. sp.

Shell long ovate conic: bluish olivaceous, with a whitish spiral line below the middle of the whorls; colors more distinct on the ribs; whitish near the upper part of the labrum; anteriorly with a pale spiral band, which is sometimes obsolete: with, on each whorl, about eleven narrow acute ribs, which are obsolete anteriorly; with very minute spiral striæ, which are less distinct below the middle of the whorls: spire with the outlines moderately curvilinear: apex acute: whorls eight, slightly convex, with a distinct suture; last whorl not ventricose: aperture elliptical; labrum thickened by a stout varix: labium thickened but not appressed: notch deep.

Mean divergence about  $37^{\circ}$ ; length .58 inch; breadth .25 inch; length of spire .35 inch

*Station*.—Under stones, a little above low water mark, in company with several species of *Columbella*.

*Habitat*.—Panama; C. B. A.!

We collected about 1500 specimens on the reef.

52. **Nassa proxima**.—Nov. sp.

{ Shell like that of *N. versicolor* (v. infra), but much more slender, with the ribs less prominent, and very densely covered with very minute uninterrupted striæ, which give a silky lustre to the surface.

Mean divergence about  $38^{\circ}$ ; length .44 inch; breadth .21 inch; length of spire .28 inch.

**Station.**—Unknown.

**Habitat.**—Taboga ; C. B. A. !

One specimen was obtained.

53. *Nassa scabriuscula* ?

*Synonymy.*

*Nassa scabriuscula* Powis in Proc. Zool. Soc. Lond. p. 96. June. 1835.

Our specimens are mostly pale olivaceous or glaucous, with the granules, upper part of the labrum, and a spiral stripe, of a dingy white. Mr. Powis describes his shell as *fusca luteo fasciata*.

Var. *a* is deeply tinged with black, and has some pure white spots at the upper part of the labrum.

Var. *b* is black, more gibbous, and is wholly covered with granules.

**Station.**—Sandy mud at a depth of 12 fathoms ; Cuming !  
Powis.

Our specimens were found on sand, usually not far below high water mark, where water runs during the recess of the tide ; also in similar situations near low water mark.

**Habitat.**—Bay of Montija ; Cuming ! Powis.

Panama ; E. Jewett ! Gould Mss.

Panama ; C. B. A. !

We collected 380 specimens.

51. *Nassa striata*.—Nov. sp.

Shell long ovate conic : white about the aperture, otherwise dingy white more or less tinged with yellowish brown : with, on each whorl, twelve or thirteen small ribs, and many coarse spiral striæ : spire with the outlines a little curvilinear : apex acute : whorls eight, convex, with a well impressed su-

ture; last whorl spirally canaliculate on the left side: aperture subelliptical: labrum rather sharp, thickened by a broad varix, coarsely grooved within: labium well thickened, not appressed, with two small wrinkles anteriorly: notch deep.

It resembles *N. versicolor* (v. infra) var. *striatula*: but besides being more coarsely striated and minutely ribbed, the whorls are much more convex.

Mean divergence about  $48^{\circ}$ ; length .58 inch; breadth .31 inch; length of spire .33 inch.

*Station*.—Unknown.

*Habitat*.—Taboga; C. B. A.!

2 specimens were obtained.

55. *Nassa versicolor*.—Nov. sp.

Shell long ovate conic: pale yellowish brown, or nearly white, with a darker sutural line, or blackish brown: sometimes the ends or the summits of the ribs are whiter than the interspaces; sometimes the sutural fascia covers the anterior part of the last whorl: with, on each whorl, nine or ten narrow very prominent ribs; with very minute spiral striæ, which are nearly obsolete on the middle of the whorls; spire with the outlines nearly or quite rectilinear: apex acute: whorls eight, slightly convex, with a well impressed suture; last whorl spirally canaliculate anteriorly: aperture subelliptical: labrum subacute, thickened with a stout varix: labium thickened, not appressed, finely wrinkled: notch deep. Var. *striatula* is covered with very distinct striæ.

Mean divergence about  $45^{\circ}$ ; length .6 inch; breadth .33 inch; length of spire .35 inch.

*N. ambigua*, the Caribbean analogue, is also an extremely variable species.

*Station*.—Unknown.



*Habitat*.—Taboga ; C. B. A. !

More than 500 specimens were collected, all occupied by hermit crabs.

56 **Nassa Wilsoni**.—Nov. sp.

Shell ovate conic, ventricose : blackish brown, with a dingy white spiral band, at or a little above the suture : with sixteen to twenty small ribs, some of the last of which are obsolete on the convexity of the whorl, and of which one next behind the varix is larger ; with many spiral raised lines, which are smaller on the summits of the ribs, and which are nearly obsolete in the region where the ribs are obsolete : spire with the outlines curvilinear : apex acute : whorls seven, slightly convex, with a distinct suture : last whorl ventricose, anteriorly with a small spiral canal : aperture suborbicular : labrum subacute, much thickened within and without, with a few sharp ridges within : labium thickened, not appressed : notch deep.

Mean divergence about  $58^{\circ}$  ; length .32 inch ; breadth .19 inch ; length of spire .18 inch.

This pretty little species is named in honor of Dr. Thomas B. Wilson, of Philadelphia, the munificent patron and successful cultivator of Natural History.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

5 specimens were obtained.

57. **Buccinum crassum**.

*Synonymy*.

*Phos crassus* Hinds Voy. Sulph. Moll. p. 38. pl. 10. f. 1, 2. 1844.  
 ——— A. Ad. Ann. and Mag. Nat. Hist. VIII. No. 43.  
 p. 71. - - - - - July 1851.

*Station*.—Dredged as solitary shells in from 3 to 14 fathoms among mud; Hinds!

*Habitat*.—Panama, and Gulf of Fonseca; Hinds!

Panama; Jay.

Panama; C. B. A.!

We obtained only 1 dead specimen.

### 58. **Buccinum distortum.**

#### *Synonymy.*

<i>Buccinum</i>	<i>distortum</i>	Bligh Catal. No. 64. (not described.)	May 1822.
————	————	Wood Ind. Test. Supp. pl. 4. f. 7.	1828.
————	————	Kiener Iconog. p. 43. pl. 18. f. 64, 65.	
<i>Polia</i>	<i>distorta</i>	Gray in Zool. Beech. Voy. p. 112.	1839.
<i>Columbella</i>	<i>triumphalis</i>	Ducl. in Chenu. Ill. Conch. pl. 5. f. 13–16.	1843.
<i>Buccinum</i>	<i>distortum</i>	Desh. in Lam. An. sans Vert. X. p. 192.	
————	————	No. 70. - - - -	1844.
————	————	Reeve Conch. Icon. pl. 11. f. 86.	Dec. 1846.

Kiener has figured as the young of this species, f. 65, a variety in which the revolution of the whorls is more oblique, and which, when full grown, has the last whorl only moderately shouldered, like the young of the common type. We obtained only two specimens of this variety. Deshayes has well described the varying characters of this remarkable species.

The epidermis is thick, rather coarse and brown, and entirely conceals the color of the shell.

*Station*.—We found this species in the crevices of rocks, between the low water mark of the neap tides and that of the spring tides.

*Habitat*.—Unknown; Wood.

New Holland; Kiener.

Chili; Deshayes: also Jay.

St. Elena; Cuming! Reeve.

Panama; E. Jewett! Gould Mss.

Panama, and Taboga; C. B. A.!

We collected 95 specimens, mostly on the reef.—Kiener's statement is undoubtedly erroneous: nor are we informed on what evidence Chili is said to be a habitat. Valparaiso being the great centre of commerce on the west coast of South America, there is much danger of referring to that habitat species which belong to other parts of the coast.

59. **Buccinum insigne.**

*Synonymy.*

*Buccinum mutabile* Val. (non Linn.) Voy. Venus. Moll.

pl. 6. f. 2. ———— 1846.

———— *insigne* Reeve Conch. Icon. pl. 8. f. 58. Dec. 1846.

*Station*.—In clefts of rocks at low water; Cuming! Reeve.

We found the species in the same situation, but more frequently under stones, and especially under stones which were lying on sand.

*Habitat*.—St. Elena; Cuming! Reeve.

West Columbia; Jay.

Lower California; Major Rich! Gould Mss.

Panama; C. B. A.!

We collected 140 specimens of this beautiful species on the reef at Panama. Most of them are both more completely and more intensely colored than the figure given by Mr. Reeve. The colors are wholly concealed by a thick brown epidermis.

60. **Buccinum lugubre.**—Nov. sp.

Shell long ovate-fusiform: very dark brown with a cinereous tinge: with small ribs, from nine to thirteen on each whorl, traversed by rather coarse unequal spiral striæ, with the intersections of the larger striæ rather acutely nodulous: apex acute: spire conic: whorls eight, very convex, with a

moderately impressed suture: aperture ovate: labrum rather sharp, thickened behind: with a short recurved canal.

Mean divergence about  $44^{\circ}$ ; length .67 inch; breadth .31 inch; length of spire .4 inch.

After much doubt respecting the generic characters of this species, we have provisionally referred it to that group of *Buccina*, which have a short recurved canal.

*Station*.—Under stones at low water mark.

*Habitat*.—Panama, and Taboga; C. B. A.!

We collected 175 specimens.

#### 61. *Buccinum pagodus*.

##### *Synonymy*.

*Buccinum pagodus* Reeve Conch. Icon. pl. 7. f. 50.

Dec. 1846.

*Station*.—In the clefts of rocks at low water; Cuming! Reeve. We found this species in the same station and also under stones.

*Habitat*.—I. of Taboga; Cuming! Reeve.

Panama; Jay.

Panama; E. Jewett! Gould Mss.

Taboga and Panama; C. B. A.!

This species is rare. Mr. Cuming obtained only one or two specimens. We obtained 7 adult, and 11 young specimens. The color of the young is very intense, almost black: that of some of the adult shells is very dark.

#### 62. *Buccinum pristis*.

##### *Synonymy*.

*Buccinum serratum* Kiener Iconog. p. 23. pl. 9. f. 28.

————— Reeve Conch. Syst. pl. 268. f. 5, 6. 1842.

————— *pristis* Desh. in Lam. An. sans Vert. X. 192. No. 69. 1844.

————— Reeve Conch. Icon. pl. 6. f. 39. Dec. 1846.

The name originally given to this species by Kiener had been preoccupied by Brocchi in 1814 for a fossil species.

**Station.**—Probably below extreme low water mark. Our specimens were collected at low water mark, where they were occupied by hermit crabs.

**Habitat.**—The South Sea, on the shores of California; Edoux ! Kiener.

Seas of California; Deshayes.

St. Elena; [? Cuming!] Reeve.

Mazatlan; Melchers! Menke.

San Blas; Dr. J. L. Burtt, U. S. N.! Mus. Acad.

Nat. Sc. Philadelphia.

Panama; C. B. A.!

The California of the French authors is probably Lower California. On the reef at Panama, we obtained 1 perfect specimen, which is  $2\frac{1}{2}$  inches long, and 5 others more or less imperfect. In two large old shells the labrum is much thickened but not deeply serrated. A magnificent specimen has been presented to the Acad. Nat. Sc. Phil. by Dr. Burtt, who found it at San Blas: it is  $3\frac{1}{2}$  in. long.

### 63. *Buccinum ringens*.

#### *Synonymy.*

*Buccinum ringens* Reeve (non Phil.) Conch. Icon. pl. 7.

f. 45. - - - - - Dec. 1846.

In the Zeitschr. Malak, 1851, p. 59, Dr. Phillippi has inadvertently repeated this name for another species.

**Station.**—On the rocks at low water; Cuming! Reeve. We found this species chiefly under stones about the low water mark of neap tides.

**Habitat.**—Panama; Cuming! Reeve.

Panama; Jay.

Panama; C. B. A.!

We collected on the reef 275 specimens.

#### 64. *Buccinum sanguinolentum*.

##### *Synonymy.*

<i>Purpura sanguinolenta</i>	Ducl. in Guer. Mag. Zool. pl. 22. f. 1. - - - - -	1833.
<i>Pollia hæmastoma</i>	Gray in Zool. Beech. Voy. p. 112.	1839.
<i>Buccinum hæmastoma</i>	Reeve Conch. Icon. pl. 7. f. 46.	Dec. 1846.
——— <i>Janelii</i>	Val. Voy. Venus. Moll. pl. 6. f. 1.	1846.
——— <i>sanguinolentum</i>	Menke in Zeitsch. Malak. p. 180.	Dec. 1847.

*Station*.—Under stones at low water; Cuming! Reeve.

A few of our specimens were found alive in the same situation; but as most of them were occupied by hermit crabs, at low water mark, it is probable that their favorite station may be somewhat lower.

*Habitat*.—Panama; Cuming! Reeve.

Mazatlan; Melchers! Menke.

Panama; Jay.

Taboga and Panama; C. B. A.!

We collected 16 specimens.

#### 65. *Buccinum Stimpsonianum*. Nov. Sp.

Shell long ovate-conic: rather pale slate color, more or less white above, with the revolving ridges brownish red or white where they cross the ribs, white in the upper half of the labrum, often with a broad white spiral band on the middle of the whorls: on each whorl with seven or eight stout transverse ridges, which are less prominent on the back of the last whorl; with several spiral linear ridges, of which four are visible on the penult whorl, which are obsolete between the transverse ridges, and are more numerous and smaller anteriorly; covered

with five crowded spiral striæ: apex acute: spire conic: whorls eight, scarcely convex: aperture ovate: labrum much thickened, with a few plaits inside: columellar lip irregularly plaited: with a short well notched canal.

Mean divergence about  $38^{\circ}$ ; length .72 inch; breadth .32 inch.

I take pleasure in dedicating this species to William Stimpson, Esq., whose researches on the Mollusca of this country will furnish a most valuable contribution to Malacology.

*Station*.—Under stones, near low water mark.

*Habitat*.—Panama; C. B. A.!

We obtained 19 specimens, of which a few only were alive.

## 66. *Dolium ringens*.

### *Synonymy*.

<i>Cassis</i>	<i>ringens</i>	Swains. in Bligh Catal. App. p. 4.	May 1822.
<i>Dolium</i>	<i>dentatum</i>	Barnes Ann. Lyc. Nat. Hist. N. York	
		I. 135. 384. pl. 9. f. 3. - - - -	1824.
<i>Cassis</i>	<i>ringens</i>	Sowb. Tank. Catal. p. 21.	1825.
<i>Buccinum</i>	—	Wood Ind. Test. Supp. pl. 4. f. 1.	1828.
<i>Dolium</i>	<i>personatum</i>	Menke Synop. p. 62.	1830.
<i>Malea</i>	<i>latilabris</i>	Valenc. in Humb. Rec. Obs. II. 325.	1833.
—	<i>crassilabris</i>	Valenc. in Humb. Rec. Obs. II. 327. var.	1834.
<i>Dolium</i>	<i>latilabre</i>	Kiener Iconog. p. 14. pl. 4. f. 7.	1835.
<i>Dolium</i>	<i>plicosum</i>	Menke in Zeitsch. Malak. p. 138.	1845.
—	<i>ringens</i>	Reeve Conch. Icon. pl. 4. f. 5.	Dec. 1849.
—	<i>dentatum</i>	Jay Catal.	Dec. 1850.
—	<i>crassilabre</i>	Menke in Zeitschr. Malak. p. 182.	Apr. 1851.

One of our specimens is 4.25 inches long, but most of them are small. One, with an excessively thickened lip and a deep groove behind the lip, is only 2.3 inches long. Mr. Reeve's figure represents a fine specimen  $5\frac{1}{4}$  inches long. One in the Mus. Amh. is 6 inches long. Mr. Barnes notices a specimen 9 inches long and 7 inches wide.

*Station*.—We found this species under and between stones at extreme low water mark.

*Habitat*.—Coast of Peru; Capt. Skiddy! Barnes.

Quito I. near Guayaquil; Don Pedro Abades!  
Barnes.

Unknown; Wood.

Acapulco; Humboldt and Bonpland! Valenciennes.

"South Sea, Pacific Ocean, shore of Mexico, at  
Acapulco:" Kiener.

Payta, Peru; Cuming! Reeve.

Peru; Jay.

Acapulco; Jay, (a var.)

Mazatlan; Melchers! Menke.

Panama; C. B. A.!

Eight specimens were collected on the reef.

#### 67. *Monoceros brevidentatum*.

##### *Synonymy.*

<i>Buccinum brevidentatum</i>	Wood Ind. Test. Supp. pl. 4. f. 10.	1828.
<i>Purpura cornigera</i>	Blainv. in Nouv. Ann. Mus. I. 213.	
— — — — —	pl. 9. f. 10. - - - - -	Mar. 1832.
— — — — —	Kiener Iconog. p. 123. pl. 39. f. 92.	
— — — — — <i>ocellata</i>	Kiener Iconog. p. 124. pl. 37. f. 86.	
— — — — —	<i>junior.</i>	
— — — — — <i>maculata</i>	Gray in Beech. Voy. p. 125.	1839.
<i>Monoceros brevidentatum</i>	Sowb. Conch. Ill. pl. 79. f. 4.	1841.
— — — — —	Orb. Voy. Amer. Merid. Moll. p. 441.	1843.
— — — — —	Desh. in Lam. An. sans Vert. X. 123.	
— — — — —	No. 9. - - - - -	1844.
— — — — —	Reeve Conch. Icon. pl. 1. f. 4.	Sept. 1844.

*Station*.—In crevices of rocks at low water; Cuming! Reeve.

We found this species in the crevices and on the sides of rocks and stones, mostly at and above half tide level.

*Habitat*.—Unknown; Wood.

Mazatlan; Botta! Blainville.



Shores of Peru ; Kiener.  
 [Chili ; Kiener, de *P. ocellata*.]  
 Pacific Ocean ; Gray.  
 Payta ; Fontaine ! Orbigny.  
 Seas of Peru ; Deshayes.  
 Xipixapi, and Monte Christi ; Cuming ! Reeve.  
 Xipixapi ; Jay.  
 Monterey ; Major Rich ! Gould MSS.  
 San Francisco ; Col. E. Jewett ! Gould MSS.  
 Panama ; C. B. A. !

On the reef this species occurred plentifully. We collected about 300 specimens. According to Col. Jewett, this species occurs at San Francisco. We have seen the specimens, which are undoubtedly identical with the Panama shells ; if there be no error in Col. Jewett's statement, this is the only species known to us, which is common to Panama and to San Francisco. But it is worthy of note that none of the Panama specimens appear in Col. Jewett's collection. Major Rich also states a habitat, Monterey, which is beyond the northern limit of the Panama zoological province.

### 68. *Monoceros cingulatum*.

#### *Synonymy.*

<i>Buccinum cingulatum</i>	Wood Ind. Test. pl. 24. f. 167.	1818.
<i>Monoceros</i> ———	Lam. An. sans Vert. VII. 250. No. 1. Aug.	1822.
—————	Lam. Encyc. Meth. pl. 396. f. 4.	1824.
—————	Sowb. Gen. f. 4.	1824.
<i>Buccinum pseudodon</i>	Burrow Elem. Conch. pl. 26. f. 2.	1825.
<i>Monoceros cingulatum</i>	Crouch Conch. pl. 18. f. 10.	1826.
—————	Schub. et Wagn. Chemn. Supp. p. 150, pl. 233, f. 4096. - - - - -	1829.
<i>Turbinella cingulata</i>	Kiener Iconog. p. 36. pl. 20. f. 1.	
<i>Monoceros cingulatum</i>	Sowb. Conch. Ill. Catal. No. 1.	1841.
—————	Reeve Conch. Syst. pl. 261, f. 4.	1842.
<i>Turbinella cingulata</i>	Lesson Rev. Zool.	July, 1842.
—————	Küst. Conch. Cab. p. 31. pl. 7. f. 8.	1844.

*Monoceros cingulatum* Lam. An. sans Vert. X. 118. No. 1.

Desh. Ed. . . . . 1844.

Reeve Conch. Icon. pl. 3. f. 11. Sept. 1844.

*Station*.—In clefts of rocks at low water; Cuming! Reeve.

We have found it in the same situation.

*Habitat*.—Unknown; Wood.

Western shores of Mexico; Humboldt and Bonpland! Lamarck.

Western shores of Mexico, those of California; Kiener.

Panama; Sowerby; also Jay.

Mazatlan; Melchers! Menke.

Panama; E. Jewett! Gould MSS.

Taboga, and Panama; C. B. A.!

We obtained 75 specimens, a majority of which are young, in part at Panama, but mostly at Taboga.

## 69. *Purpura Carolensis*.

### *Synonymy.*

*Purpura Carolensis* Reeve Conch. Icon. pl. 11. f. 57. Sept. 1844.

*Station*.—Under stones at low water; Cuming! Reeve.

We found this species under stones and in the crevices of rocks near low water mark.

*Habitat*.—Charles I. Gallapagos; Cuming! Reeve.

Gallapagos; Jay.

Taboga; C. B. A.!

We collected 20 specimens, many of which are immature.

## 70. *Purpura foveolata*. Nov. sp.

Shell obliquely rhombic: white: with very prominent compressed transverse ridges, about nine on each whorl, and four spiral keels which are very prominent and much compressed, of

which the upper one is seen on the middle of the whorls of the spire, and of which the anterior one is much less developed; with the intersections prominent; with rather fine spiral striæ: apex acute: whorls six, concave on both sides of the keel, with the suture indistinct: aperture long ovate, produced into a short canal: labrum rather thin, scalloped by the keels and finely serrated by the striæ.

Mean divergence about  $70^{\circ}$ ; length, .43 inch; breadth, .28 inch.

*Station*.—Under stones, near low water mark.

*Habitat*.—Panama; C. B. A.!

3 specimens were obtained.

## 71. *Purpura kiosquiformis*.

### *Synonymy*.

<i>Purpura kiosquiformis</i>	Ducl. in Ann. des Sc. Nat. XXVI.	
	107. pl. 1. f. 5.	- - - - - May 1832.
—————	Kiener Iconogr. p. 59. pl. 15. f.	
	40. ( <i>Optimé</i> .)	
—————	Desh. in Lam. An. sans Vert. X.	
	p. 96. No. 60.	- - - - - 1844.
—————	Souleyet (?) Voy. Bonite. Moll. pl.	
	39. f. 23–25.	- - - - - 1844!
—————	Reeve Conch. Icon. pl. 7. f. 31. var.	Aug. 1846.
—————	Mrs. Gray Moll. pl. 87 a. f. 6. <i>soft</i>	
	<i>parts</i>	- - - - - 1850.

*Station*.—On rocky places at low water; Cuming! Reeve.

We found this species abundantly from half tide nearly up to the high water mark of neap tides, on rocks, and on the lower parts of the trunks and about the roots of trees, which were growing from a stony bottom.

*Habitat*.—Seas of New Holland; Duclos; also Kiener.

Seas of New Holland, according to Kiener; Deshayes.

Bay of Panama; Cuming! Reeve.

West Columbia; Jay.

La Paz, in Lower California; LA. Green! Gould

MSS.: also Mus. Essex Inst.

Panama; Jewett! Gould MSS.

Panama; C. B. A.!

Duclos' and Kiener's statement is probably erroneous.

We collected 170 specimens. The variety, figured by Mr. Reeve, with two keels almost equally developed, we did not find: but several specimens have a second keel moderately developed.

### 72. *Purpura* ———. Sp. indet.

This shell resembles *P. biosquiformis*, is longer, with the whorls revolving more obliquely, and with other differences. One specimen was obtained. It is not sufficiently perfect for description.

### 73. *Purpura melo*.

#### *Synonymy.*

<i>Purpura crassa</i>	Blainv. in Nouv. Ann. Mus. I. 241.	
—————	No. 83. pl. 12. f. 4. - - - - -	March 1832.
—————	Sowb. Gen. No. 42. f. 5.	1824.
————— <i>melones</i>	Duclos. Ann. des Sc. Nat. XXVI. 105.	
—————	pl. 1. f. 2. - - - - -	May 1832.
—————	Kiener Iconog. p. 125. pl. 39. f. 93. <i>junior</i> .	
—————	Reeve Conch. Syst. pl. 259. f. 5. <i>junior</i> .	1842.
————— <i>melo</i>	Desh. in Lam. An. sans Vert. X. 106.	
—————	No. 71. - - - - -	1844.
————— <i>melones</i>	Reeve Conch. Icon. pl. 4. f. 19.	Aug. 1846.

*Station*.—Under stones at low water; Cuming! Reeve.

Our specimens were found about the sides and crevices of rocks, from the low water mark of neap tides up to three-quarters tide.

*Habitat*.—Unknown; Blainville; also Duclos.

Shores of Peru ; Kiener : also Deshayes.

Monte Christi ; Cuming ! Reeve.

Monte Christi and Peru ; Jay.

Panama ; E. Jewett ! Gould MSS.

Panama and Taboga ; C. B. A. !

We collected 150 specimens, partly at Taboga, but mostly at Panama. Old specimens become very thick, and are rectangularly shouldered on the last whorl.

74. **Purpura osculans.** Nov. sp.

Shell obliquely rhombic : dingy white, pure white within : with, on each whorl, 9 transverse, rather small, prominent, well-rounded ridges, which are produced to the anterior extremity : with crowded spiral closely imbricately scaled narrow ridges, which traverse the transverse ridges, and of which the alternate ones are more prominent : apex acute : spire with the outlines rectilinear : whorls six and one-half, convex, with a well-impressed suture : aperture obovate : labrum finely scalloped, transversely grooved within : with a short, deeply-notched canal. Allied to *Purpura galea* and other kindred species.

Mean divergence about 70° ; length, .27 inch ; breadth, .17 inch ; length of spire, .12 inch.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. ! 2 specimens were obtained.

75. **Purpura tecta.**

*Synonymy.*

<i>Purpura callosa</i>	Sowb. (non Lam.) Gen. No. 42. f. 9.	1824.
<i>Buccinum tectum</i>	Wood Ind. Test. Supp. pl. 4. f. 13.	1828.
<i>Purpura angulifera</i>	Ducl. in Ann. des Sc. Nat. XXVI. 107. pl. 1. f. 6. - - - - -	May 1832.
—————	Kiener Iconog. p. 60. pl. 15. f. 43.	
<i>Cuma sulcata</i>	Swains. Malac. p. 87. f. 4. p. 307.	1840.

<i>Purpura callosa</i>	Reeve (non Lam.) Conch. Syst. pl.	
	260. f. 9. - - - - -	1842.
<i>Turbinella</i> ———	Lesson Rev. Zool.	July 1842.
———— <i>tectum</i>	Reeve Conch. Icon. pl. 8. f. 41.	Aug. 1847.
———— ———	Jay Catal.	Dec. 1850.

The specific name given in Sowb. Gen. was preoccupied by Lamarck for a shell, which, according to Kiener and to Reeve, is only a variety of *P. bufo*; but Deshayes regards it as a good species. We have therefore used the name given by Wood, after Reeve and Jay.

*Station*.—In 10 fathoms sandy mud; Cuming! Reeve.

We found our specimens in the crevices of rocks, between the low water marks of the neap tides and of the spring tides.

*Habitat*.—Unknown; Wood: also Duclou.

Shores of Chili; Kiener.

Real Llejos; Lesson.

Bay of Panama; Cuming! Reeve.

Panama; Jay.

Panama; C. B. A.!

We collected 60 specimens on the reef. All of them are of the var. *b* Reeve.

## 76. *Purpura undata*.

### *Synonymy*.

<i>Purpura undata</i>	Lam. (non Orb.) An. sans Vert. VII.	
	238. No. 10. (Syn. Excl.) - -	Aug. 1822.
———— ———	Blainv. in Nouv. Ann. Mus. I. 217. pl. 9.	
	f. 12. - - - - -	Mar. 1832.
———— ———	Valenc. in Humb. Rec. Obs. II. 315.	1833.
———— ———	Kiener Iconog. p. 116. pl. 34. f. 81. (Var. s Excl.)	
———— ———	Lam. An. sans Vert. X. 67. No. 10. Desh.	
	Ed. - - - - -	1844.
———— ———	Souleyet (?) Voy. Bonite Moll. pl. 39.	
	f. 17-19. - - - - -	1844?

<i>Purpura undata</i>	Reeve Conch. Icon. pl. 9. f. 43.	Sept. 1847.
— <i>hæmastoma</i>	Menke (non Lam.) Zeitschr. Malak.	
	p. 182. - - - - -	Nov. 1847.
— <i>undata</i>	Mrs. Gray, Moll. pl. 87. a. f. 1.	1850.

*Station*.—Under stones at low water; Cuming! Reeve.

We found this species under stones near the low water mark of the neap tides.

*Habitat*.—Unknown; Lamarck.

Acapulco; Humboldt and Bonpland! Valenciennes.

South Sea and Shores of St. Helena; Kiener.

Monte Christi; Cuming! Reeve.

Monte Christi; Jay.

Panama; C. B. A.!

We collected 180 specimens on the reef at Panama.—This species and *P. hæmastoma* are sometimes confounded. The latter inhabits only the Mediterranean and the eastern shores of the Atlantic, in warm latitudes. It is, therefore, extremely probable that Dr. Menke's *P. hæmastoma* from Mazatlan is the true *P. undata*. As Kiener confounds three distinct species, there can be no advantage in learning whether his "Sainte Hélène" is St. Helena in the Atlantic, or St. Elena in West Columbia.

**COLUMBELLA.** Numerous species of this genus, and an incredible multitude of individuals were found at Panama. Many of the species are among the most beautiful in the genus. Perhaps no other fauna equals the marine Pacific fauna of tropical America for its development of this genus in these three characters—number of typical forms, number of individuals, and their size and elegance. The number of species which have been collected at Panama much exceeds the number in the entire genus which were known to Lamarck. While very few of the species which we collected have been described in

M. Kiener's monograph of the genus, most of them are easily determined with Mr. Sowerby's accurate figures. To these the descriptions of many of the species by Deshayes (in Lam. An. sans Vert.) have been found a valuable addition.

### 77. *Columbella atramentaria*.

#### *Synonymy.*

<i>Columbella atramentaria</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 51. - - - -	March 1844.
—————	Sowb. Thes. Conch. p. 134. No.	
	67. pl. 40. f. 174. - -	1844.

This species closely resembles *C. nigricans*, differing chiefly in the shorter spire and more obese outline. Its coloring is also different from the common style of that species, consisting of pale rectangular spots on a greyish black ground.

*Station*.—We found this shell under stones near low water mark.

*Habitat*.—Chatham I., Gallapagos.—Sowerby.

Panama.—C. B. A.!

We obtained only three specimens.

### 78. *Columbella bicanalifera*.

#### *Synonymy.*

<i>Columbella bicanalifera</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 113. - - - -	June 1832.
—————	Müll. Synop. Nov. Test. Viv. p. 81.	1836.
—————	Sowb. Thes. Conch. p. 137. No. 77.	
	pl. 39. f. 144. - - -	1844.

*Station*.—In sandy mud, at 10 fathoms depth; Cuming! Sowerby.

*Habitat*.—Gallapagos; Cuming! Sowerby: also Müller.

Taboga; E. Jewett! Gould MSS.

Panama; C. B. A.!



We were indebted to the hermit crabs for 36 specimens, which were taken, in a more or less perfect state of preservation, about two miles east of Panama.

### 79. *Columbella Boivinii*.

#### *Synonymy.*

<i>Columbella Boivinii</i>	Kiener Iconog. p. 47. pl. 11. f. 1.	
—————	Ducl. in Chenu, Ill. Conch. pl. 21.	
	f. 19, 20. - - - -	1843.
—————	Sowb. Thes. Conch. p. 126. No. 43.	
	pl. 38. f. 100. - - -	1844.
—————	Desh. in Lam. An. sans Vert. 10.	
	281. No. 28. - - -	1844.

*Station*.—We found these mollusks between half and three quarters tide, in the margin of water left by the ebbing tide in cavities of the rocks.

*Habitat*.—Unknown; Kiener.

Gulf of Nicoya; Ilands! Sowerby.

Gulf of Nicoya; Deshayes: also Jay.

Panama and Taboga; C. B. A.!

Our specimens were obtained chiefly on the rocks in front of the fortifications in the sea wall of Panama. Immature individuals were quite numerous, but only 50 adult specimens were taken alive.

### 80. *Columbella conspicua*. Nov. sp.

Shell ovate-conic: with a broad white spiral band on the convexity of the whorls, on each side of which is a broad band of brownish orange; anteriorly white with irregular brown spots; with deep brown spots near the summits of the alternate ridges; with, on each whorl, nine very prominent obtuse transverse ridges, which are obsolete at the upper part of the whorls; with coarse spiral striæ, which traverse the ridges except at the summit of the middle and most prominent part: apex suba-

oute; spire with the outlines nearly rectilinear; whorls eight, convex, with a moderately impressed suture; last whorl sub-angular; aperture a little wider above; labrum moderately thickened, with a few wrinkles on the inside: notch wide and deep.

Mean divergence about  $35^{\circ}$ : length .21 inch; breadth, .1 inch; length of spire, .12 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

Only one specimen of this elegant shell was found.

### 81. *Columbella costellata*.

#### *Synonymy*.

<i>Columbella costellata</i>	Brocl. and Sowb. in Zool. Journ.	
	IV. 376. - - - - -	1839.
_____	Sowb. in Proc. Zool. Soc. Lond.	
	p. 118. - - - - -	June 1832.
_____	Müll. Synops. Nov. Test. Viv. p. 88.	May 1838.
_____	Gray in Zool. Beech. Voy. pl. 36.	
	f. 9? - - - - -	1839.
_____	Ducl. in Chenu Ill. Conch. pl. 25. f.	
	11, 12. - - - - -	1843.
_____	Sowb. Thes. Conch. p. 137. No. 79.	
	pl. 39. f. 147. - - - - -	1844.

We have had some difficulty in determining whether our shells belong to this species or to *C. scalarina*. Taking the descriptions and figures by Mr. Sowerby, the ribs in *C. costellata* are said to fall far short of the anterior extremity, but to be prolonged in *C. scalarina*, although the figures of these species exhibit no difference in this respect: most of our specimens have them prolonged, but the character is not constant. In other respects the figures of the two species are very different, and that of *C. costellata* well represents our shells. Many of the specimens are larger than this figure.

In Chenu, the figures of both species have the ribs prolonged. In these figures the ribs are more distant in *C. costellata* than in *C. scalarina*. The figure of the former very exactly represents our shells.

*Station*.—A single specimen was found at the depth of 16 fathoms; Cuming! Sowerby. Our specimens were found under stones near low water mark.

*Habitat*.—Panama; Cuming! Sowerby: also Müller.

Panama and coast of Africa; Gray.

Panama; C. B. A.!

We collected 25 specimens on the reef. Mr. Gray must be in error when he includes the coast of Africa in the habitat.

## 82. *Columbella diminuta*. Nov. sp.

Shell subfusiform: pale yellowish brown, black or brownish black anteriorly: ribbed, with the interstices covered with spiral striæ, which are coarser anteriorly where the ribs are obsolete; apex acute: spire conic: whorls seven, scarcely convex: with the suture lightly impressed: aperture rather narrow: labrum variciform, broadly thickened, sinuate posteriorly, crenulated within: columellar lip with the granules obsolete.

Mean divergence about  $45^{\circ}$ ; length, .155 inch; breadth, .07 inch; length of spire .08 inch.

This species resembles a dwarfed *C. nigrescens*.

*Station*.—Under stones near low water mark we found this shell.

*Habitat*.—Panama; C. B. A.! 19 specimens were obtained.

## 83. *Columbella dorsata*.

### *Synonymy*.

<i>Columbella dorsata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 120.	June 1832.
—————	Müller Synop. Nov. Test. Viv. p. 91.	May 1836.
—————	Reeve Conch. Syst. pl. 257. f. 7.	1842.

<i>Columbella dorsata</i>	Ducl. in Chenu Ill. Conch. pl. 20. f.	
	17, 18. - - - - -	1843.
—————	Sowb. Thes. Conch. p. 136. No. 75.	
	pl. 39. f. 140-1. - - - - -	1844.
—————	Desh. in Lam. An. sans Vert. X.	
	291. No. 45. - - - - -	1844.

*Station*.—Unknown.

*Habitat*.—I. of Muerte, Bay of Guayaquil; Cuming! Sowerby:  
also Müller.

Shores of Columbia; Deshayes.

I. of Muerte; Jay.

Panama; C. B. A.!

We obtained only 1 dead shell of rather small size.

#### 84. *Columbella fluctuata*.

##### *Synonymy*.

<i>Columbella fluctuata</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 115. - - - - -	June 1832.
————— <i>suturalis</i>	Griff. Cuv. An. King. Moll. pl. 41.	
	f. 6? - - - - -	1834.
————— <i>fluctuata</i>	Müll. Synop. Nov. Test. Viv. p. 84.	1836.
————— <i>suturalis</i>	Kiener Iconog. p. 45. pl. 9. f. 2.	
————— <i>fluctuosa</i>	Ducl. in Chenu, pl. 13. f. 11, 12.	1843.
————— <i>fluctuata</i>	Sowb. Thes. Conch. p. 138. No. 82.	
	pl. 39. f. 150. - - - - -	1844.
—————	Desh. in Lam. An. sans Vert. X.	
	283. No. 33. - - - - -	1844.

*Station*.—Under stones; Cuming! Sowerby: also Müller.

Our specimens were found under stones a little above the low  
water mark of neap tides.

*Habitat*.—Gulf of Nicoya; Cuming! Sowerby: also Müller.

Shores of Peru; Kiener.

Gulf of Nicoya; Deshayes: also Jay.

Panama; C. B. A.!

We collected on the reef about 400 specimens of this elegant  
species.

85. *Columbella fulva*.*Synonymy.*

<i>Columbella fulva</i>	Sowb. in Proc. Zool. Soc. Lond. p. 115.	June 1832.
—————	Müll. Synop. Nov. Test. Viv. p. 83.	1836.
—————	Sowb. Thes. Conch. p. 138. No. 80. pl.	
—————	39. f. 148. - - - - -	1844.
—————	Desh. in Lam. An. sans Vert. X. 281, No. 29.	1844.

*Station*.—Under stones; Cuming! Sowerby.—Under stones; Deshayes.

Our specimens were found in the same situation, not far from low water mark.

*Habitat*.—Panama; Cuming! Sowerby: also Müller.

Panama; Deshayes: also Jay.

Mazatlan; Melchers! Menke.

Panama; C. B. A.!

We obtained only 3 specimens.

86. *Columbella fuscata*.*Synonymy.*

<i>Columbella fuscata</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 117. - - - - -	June 1832.
—————	Müll. Synop. Nov. Test. Viv. p. 88.	1836.
————— <i>meleagris</i>	Kiener Iconog. p. 10. pl. 3. f. 3.	
—————	Ducl. in Chenu Ill. Conch. pl. 4.	
	f. 15, 16. and pl. 16. f. 13, 14. -	1840.
—————	Orb. Voy. Amer. Merid. Moll. p. 430.	1843.
————— <i>fuscata</i>	Sowb. Thes. Conch. p. 114. No. 11.	
	pl. 36. f. 21, 25. - - - - -	1844.
—————	Desh. in Lam. An. sans Vert. X.	
	276. No. 22. - - - - -	1844.

*Station*.—Under stones; Cuming! Sowerby.

Our specimens were found under stones a little above low water mark.

*Habitat*.—Common at Panama, St. Elena, and Monte Christi;

Cuming! Sowerby; also Müller.

Shores of San Blas; Kiener.

Acapulco; Lesson.

Panama, St. Elena, and Monte Christi; Deshayes.

Mazatlan; Melchers! Menke.

Panama; Jay.

Taboga; C. B. A.!

At the season of our excursion to Panama, specimens were scarce. We obtained only 4 living and 2 dead shells. One of these, although mature, is only .88 inch long.

### 87. *Columbella gibberula*.

#### *Synonymy*.

<i>Columbella gibberula</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 115. - - - - -	June, 1832.
_____	Müll. Synop. Nov. Test. Viv. p. 83.	1836.
_____	Ducl. in Chenu Ill. Conch. pl. 12.	
	f. 5, 6. - - - - -	1843.
_____	Kiener Iconog. p. 44. pl. 15. f. 3.	
_____	Sowb. Thes. Conch. p. 136. No.	
	136. pl. 39. f. 142-3. - - - -	1844.
_____	Desh. in Lam. An. sans Vert. X.	
	292. No. 47. . - - - -	1844.

*Station*.—In sandy mud, at 11 fathoms depth; Cuming!  
Sowerby.

*Habitat*.—Bay of Caraccas, and Puerto Portrero; Cuming!  
Sowerby; also Müller.

Shores of Chili; Kiener.

Shores of Southern and Central America; Deshayes.

Central America; Jay.

Taboga; E. Jewett! Gould MSS.

Taboga; C. B. A.!

We found 7 specimens occupied by hermit crabs in a perforated log. The northern boundary of Chili is the most extreme

southern limit, so far as authentic testimony goes, reached by any of the species which inhabit the Bay of Panama, and we have, therefore, some doubt of the accuracy of Kiener's statement.

88. **Columbella gracilis.** Nov. sp.

Shell long ovate conic; upper whorls pale brown; with irregular spots of darker reddish brown, mostly near the suture and nearly covering the last whorl, on the periphery of which is a whitish band articulated with arrow-headed brown spots: with very numerous small ribs, of which the posterior ends only remain on the back of the last whorl; anteriorly with revolving striæ: apex acute: spire conic: whorls eight, scarcely convex, with the suture distinctly impressed: aperture narrow: labrum variciform, rather sharp-edged, thickened behind, a little sinuate posteriorly, with a few granules inside: columellar lip nearly smooth.

Mean divergence about  $37^{\circ}$ : length .3 inch; breadth .125 inch: length of spire .2 inch.

Var. with the color nearly uniform dingy brown.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

We were indebted to the hermit crabs for 7 specimens.

89. **Columbella guttata.**

*Synonymy.*

*Columbella guttata* Sowb. in Proc. Zool. Soc. Lond. p. 118. June 1832.

————— Mull. Synop. Nov. Test. Viv. p. 88. May 1836.

————— *cribraria* Sowb. (non Lam.) Thes. Conch. p. 129.

No. 51. pl. 38. f. 112. - - - - - 1844.

Mr. Sowerby, having relinquished the species, has re-used the name for quite a different species, in Proc. Zool. Soc. Lond. p. 50. Mar. 1844, and in Thes. Conch. p. 131. pl. 39. f. 124.\*

\* In his Index this species is called *C. punctata*.

We have excluded from the synonymy the *C. cribraria* (Buccinum) of Lamarck and of some other authors, because at least two species appear to have been confounded. One inhabits the Panama zoological province, and the other, the Caribbean seas. The Caribbean type is that which generally bears the Lamarckian name in the collections of the United States. In Jamaica, we have taken several varieties of it, all of which are distinguishable, by slight differences, from the Panama type. Kiener's figures (Buccinum, pl. 16. f. 57) resemble the Caribbean rather than the Pacific type. This author, however, says of the species :—"Habite les mers des Indes, l'île de l'Ascension et les côtes de Gorée, où elle est très abondante." And Lamarck gives as the habitat of his shell, "les mers du Java, M. Leschenault." The Caribbean shell, however, has been described by Professor Dunker (Zeitschr. Malak. 1847. p. 64; and in Phil. Abbild. III. pl. 2. f. 7. 1849) under the name of *Buccinum parvulum*. Whether there be also an Indian species, which furnished the Lamarckian type, remains to be ascertained. In the "Voyage of the Astrolabe," II. 421. pl. 30. f. 21, 22, we recognise the Caribbean type (badly colored). It was obtained at Ascension Island.

*Station*.—Under stones; Cuming! Sowerby.

Our specimens were found under stones, not far above low water mark.

*Habitat*.—Very common at Panama; Cuming! Sowerby: also Müller.

Panama; Jay.

Taboga and Panama; C. B. A.!

Mazatlan; E. Jewitt! Gould MSS.

Most of our specimens were found at Taboga. We collected about 75 individuals of the type which is figured in the Thes. Conch., and as many of a type, which is much more finely and densely dotted with the white or even reticulated only with the brown color. Most of the former are rather larger than the



figure referred to; but the latter differ much in size. Some of these are as small as the Caribbean type. Individuals were by no means common at the time of our visit to Panama.

## 90. *Columbella hæmastoma*.

### *Synonymy.*

<i>Columbella hæmastoma</i>	Sowb. in Proc. Zool. Soc. Lond.	
_____	p. 116. - - - -	June 1832.
_____	Reeve Conch. Syst. pl. 257. f. 4.	1842.
_____	Ducl. in Chenu, Ill. Conch. pl.	
_____	5. f. 3, 4. - - - -	1843.
_____	Kiener Iconog. p. 4. pl. 10. f. 2.	
_____	Sowb. Thes. Conch. p. 111.	
_____	No. 3. pl. 36. f. 5. - -	1844.
_____	Reeve Elem. Conch. pl. 7.	
_____	f. 34. a. - - - -	1848 !

*Station*.—Under stones; Cuming! Sowerby.

*Habitat*.—Panama, and the Gallapago Is.; Cuming! Sowerby.  
Shores of California; Kiener.  
Panama, Gallapago Is.; California; Jay.  
Panama; C. B. A!

We found but one dead specimen, in which the colors of the last whorl consist of two white and two brown alternating bands.

## 91. *Columbella harpiformis*.

### *Synonymy.*

<i>Columbella harpiformis</i>	Sowb. in Proc. Zool. Soc. Lond.	
_____	p. 113. - - - -	June, 1832.
_____	Müll. Synop. Nov. Test. Viv. p. 80.	1836.
_____	Reeve. Conch. Syst. pl. 257. f. 3.	1842.
_____	Griff. An. King. Moll. pl. 37. f. 2.	1834.
_____ <i>citharula</i>	Ducl. in Chenu, Ill. Conch. pl. 10.	
_____	f. 9, 10. - - - -	1843.

<i>Columbella citharula</i>	Kiener Iconog. p. 54, pl. 16. f. 2.	
———— <i>harpiformis</i>	Sowb. Thes. Conch. 112. No. 6.	
	pl. 36. f. 10. 12.	- - 1844.

*Station*.—On dead shells at a depth of 10 fathoms; Cuming! Sowerby. Our specimens were found under stones at low water mark.

*Habitat*.—Bay of Panama; Cuming! Sowerby: also Müller. Unknown; Kiener.  
Mazatlan; Melchers! Menke.  
Panama; Jay.  
Panama; C. B. A!

We obtained on the reef 9 specimens of this rare shell.

## 92. *Columbella labiosa*.

### *Synonymy*.

<i>Columbella labiosa</i>	Sowb. Gen. pt. 9. f. 2.	1824.
————	Crouch Conch. pl. 19. f. 7.	1826.
————	Reeve Conch. Syst. pl. 258. f. 2.	1842.
————	Souleyet (?) Voy. Bonite. Moll. pl. 45.	
	f. 8-12.	- - - - 1844!
————	Kiener Iconog. p. 6. pl. 3. f. 1.	
————	Sowb. Thes. Conch. p. 112. No. 5. pl. 36.	
	f. 8, 9.	- - - - 1844.

*Station*.—We found this species under stones near low water mark.

*Habitat*.—Unknown; Kiener.  
Found abundantly at St. Elena; Cuming! Sowerby.  
St. Elena; Jay.  
Taboga; C. B. A!

We obtained 4 mature and 6 young specimens.

93. *Columbella lyrata*.*Synonymy.*

<i>Columbella lyrata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 114.	June 1832.
—————	————— Müll. Synop. Nov. Test. Viv. p. 82.	1836.
—————	————— Reeve Conch. Syst. pl. 257. f. 1.	1842.
—————	————— Ducl. in Chenu, Ill. Conch. pl. 10. f. 13, 14.	
—————	————— Kiener Iconog. p. 59. pl. 10. f. 1.	
—————	————— Sowb. Thea. Conch. p. 138. No. 80. pl. 39.	
	f. 149. - - - - -	1844.

*Station*.—Under stones; Cuming! Sowerby. Our specimens were found under stones at low water mark.

*Habitat*.—Bay of Panama and Chiriqui; Cuming! Sowerby: also Müller.

“Les rochers des côtes de Panama;” Kiener.

Panama; Jay.

Panama; C. B. A.!

We obtained on the reef 19 specimens of this beautiful shell.

94. *Columbella major*.*Synonymy.*

<i>Columbella major</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 119 - - - - -	June 1832.
————— <i>gibbosa</i>	Valenc. in Humb. Rec. Obs. II.	
	331? - - - - -	1833.
————— <i>major</i>	Müll. Synop. Nov. Test. Viv.	
	p. 90. - - - - -	May 1836.
————— <i>gibbosa</i>	Ducl. in Chenu, Ill. Conch. pl. 5.	
	f. 5, 6? - - - - -	1843.
————— <i>strombiformis</i>	Var. Kiener Iconog. p. 4. pl. 1.	
	f. 1. a.	
————— <i>major</i>	Sowb. Thes. Conch. p. 110. No. 2.	
	pl. 36. f. 3, 4, 6. - - -	1844.
—————	Desh. in Lam. An. sans Vert. X.	
	274. No. 19. - - - - -	1844.
—————	Desh. Traité Elem. pl. 120. f. 11, 12.	

*Station*.—Under stones; Cuming! Sowerby. Our specimens were found under stones near low water mark.

*Habitat*.—I. of Muerte; Cuming! Sowerby: also Müller.  
Seas of South America; Deshayes.  
Central America; Jay.  
Mazatlan; Lt. Green! Gould MSS.: also Mus.  
Essex Inst.  
Panama; E. Jewett! Gould MSS.  
Taboga; C. B. A.!

We obtained 30 specimens, most of which were taken alive. They are more intensely colored than Mr. Sowerby's figure, and several have the spire more elevated.

95. **Columbella modesta.**

*Synonymy.*

*Buccinum modestum* Powis in Proc. Zool. Soc. Lond. p. 94. June 1835.  
————— Reeve Conch. Icon. pl. 4. f. 19. Dec. 1846.  
*Columbella modesta* Gould MSS.

*Station*.—Muddy gravel at a depth ranging from 7 to 17 fathoms; Cuming! Powis; also Reeve.

Our specimens were brought up by hermit crabs, which frequented rocks, and were especially numerous about a pile of railroad iron lying in the soft ooze not far above low water mark.

*Habitat*.—Bay of Montija; Cuming! Powis: also Reeve.  
West Columbia; Jay.  
Santa Barbara; E. Jewett! Gould MSS.  
Panama; C. B. A.!

We collected 80 specimens, mostly in good condition.

96. **Columbella mæsta.** Nov. sp.

Shell slender, subfusiform: black, or brownish black, with the color less intense on the back of the last whorl: upper

whorls smooth or with one or two revolving striæ; middle whorls with twelve to fifteen ribs, with the interstices spirally striate; with the ribs and striæ obsolete on the back of the last whorl; more strongly striated anteriorly: apex acute: spire very slender: whorls eight, scarcely convex, with the suture lightly impressed: aperture long and narrow: labrum variciform, very thick, sinuate posteriorly, crenulated within: columellar lip nearly smooth.

Mean divergence about 35°; length .3 inch; breadth .11 inch; length of spire .17 inch.

*Station.*—We found this species about sticks and stones in a grove of trees, a little above half tide level.

*Habitat*.—Panama; C. B. A.!

58 specimens were obtained about two miles west of the city.

**97. *Columbella nigricans.***

*Synonymy.*

*Columbella nigricans* Sowb. in Proc. Zool. Soc. Lond. p. 52. Mar. 1844.

————— Ducl. in Chenu, Ill. Conch. pl. 21. f. 7, 8.

———— Sowb. Thes. Conch. p. 143, No. 95. pl. 40.  
f. 172.

*Station.*—Our specimens were found under stones, between half tide and low water mark.

*Habitat*.—Gallapago Is. ; Cuming ! Sowerby.

Gallapago Is.; Jay.

Taboga; E. Jewett! Gould MSS.

**Panama and Taboga ; C. B. A. !**

We obtained on the reef about 120 specimens of large size, most of which are colored as described by Mr. Sowerby. About 500 specimens of small size were collected, among which there is a great diversity of coloring. Many have a white spiral band. All shades of brown occur. Some of the small individuals are likely to be confounded with *C. parva* Sowb.; but

in *C. nigricans* a revolving impressed line cuts the posterior ends of the ribs.

### 98. *Columbella parva*.

#### *Synonymy.*

<i>Columbella parva</i>	Sowb. in Proc. Zool. Soc. Lond. p. 52.	Mar. 1844.
—————	Sowb. Thes. Conch. p. 142. No. 83. pl. 40.	
	f. 170. - - - - -	1844.

*Station*.—Under stones; Cuming! Sowerby.

*Habitat*.—Monte Christi; Cuming! Sowerby.  
Panama; C. B. A.!

We found only one specimen.

### 99. *Columbella pulchrior*. Nov. sp.

Shell rather long ovate: with a whitish revolving band next below the suture articulated with large spots of a dark slate color; with a translucent ground of pale yellowish brown, on which are placed in quincunx order rather numerous, excessively minute sharply defined dots of reddish brown; with one or two large irregular spots of dark brown near the end of the last whorl: surface smooth and shining: apex acute: spire conic: whorls six or seven, scarcely convex, with the suture lightly impressed: aperture narrow: labrum rather sharp, thickened behind, with a few granules inside: columellar lip nearly smooth.

Mean divergence about 45°; length .15 inch; breadth .07 inches; length of spire .075 inches.

*Station*.—Under stones near low water mark.

*Habitat*.—Panama; C. B. A.!

We found of this rare and elegant little shell only 5 specimens.

100. **Columbella pygmæa.***Synonymy.*

<i>Columbella pygmæa</i>	Sowb. in Proc. Zool. Soc. Lond. p. 119. June 1832.	
—————	Müll. Synop. Nov. Test. Viv. p. 90. May 1836.	
—————	Sowb. Thes. Conch. p. 141. No. 89. pl. 40. f. 163. - - - - -	1844.

*Station.*—On dead shells in sandy mud, at a depth of 10 fathoms; Cuming! Sowerby.

Our specimens were found under stones at low water mark.

*Habitat.*—St. Elena; Cuming! Sowerby: also Müller.

St. Elena; Jay.

Panama; C. B. A.!

We collected on the reef 185 specimens of this pretty species.

101. **Columbella rugosa.***Synonymy.*

<i>Columbella rugosa</i>	Sowb. in Proc. Zool. Soc. Lond. p. 115. June 1832.	
—————	Müll. Synops. Nov. Test. Viv. p. 84. 1836.	
————— <i>Sowerbyi</i>	Ducl. in Chenu, Ill. Conch. pl. 19. f. 5. 6. ? 1843.	
————— <i>bicolor</i>	Kiener Iconog. p. 46. pl. 16. f. 4. ?	
————— <i>rugosa</i>	Sowb. Thes. Conch. p. 130. No. 53. pl. 38. f. 114-5. - - - - -	1844.

There are three principal varieties, which freely graduate into each other. The first has a few distant tubercles on the lower whorls: the second has ribs on the first part of the last whorls, but they are rather short and wide: in the third these ribs of the last whorl are narrow and long. Specimens of a diminutive size are very common. About two thirds of those which we collected are from .60 inch to .75 inch long; about one fourth of them range from .35 inch to .50 inch in length. The epidermis is brown, and very thin but tough.

*Station.*—Under stones; Cuming! Sowerby.

Our specimens were found under stones between half tide and the low water mark of neap tides.

*Habitat*.—Panama and Xipixapi; Cuming! Sowerby; also Müller.

Panama and Xipixapi; Jay.

Real Llejos; Mörch.

Panama and Taboga; C. B. A.!

We collected about 1500 specimens on the reef, where it is the most abundant species in the genus.

# 102. *Columbella strombiformis*.

## *Synonymy*.

<i>Columbella strombiformis</i>	Lam. An. sans Vert. VII. 293.	
_____	No. 1. - - - - -	Aug. 1822.
_____	Sowb. Gen. pl. — f. 1.	1842.
_____	Desh. in Encyc. Meth. Vers. II.	
_____	p. 251. (pag. ser. 1.) No. 1.	- 1830.
_____	Blainv. Malac. pl. 29. f. 23.	May, 1825.
<i>Buccinum strombiforme</i>	Wood Ind. Test. Supp. pl. 4.	
_____	f. 18. - - - - -	1828.
<i>Columbella strombiformis</i>	Valenc. in Humb. Rec. Obs. II.	
_____	330. - - - - -	1833.
_____	Reeve Conch. Syst. pl. 257.	
_____	f. 1. ( <i>malé</i> ) - - - - -	1842.
_____	Ducl. in Chenu, Ill. Conch.	
_____	pl. 5. f. 7, 8.	
_____	Kiener Iconog. p. 3. pl. 1. f. 1.	
_____	Orb. Voy. Amer. Merid. Moll. 429.	1843.
_____	Sowb. Thes. Conch. p. 110.	
_____	No. 1. pl. 36. f. 1. 2. - - - -	1844.
_____	Lam. An. sans Vert. X. 266.	
_____	No. 1. Desh. Ed. - - - - -	1844.

*Station*.—Unknown.

*Habitat*.—Coasts of Acapulco; Humboldt and Bonpland! Lamarck.

Acapulco; Humboldt and Bonpland! Valenciennes.

Coasts of Peru; Deshayes: also Kiener.

I. of Muerte; Cuming! Sowerby.



Acapulco; Lesson.

Payta; Fontaine! D'Orbigny.

Mazatlan; Melchers! Menke.

Acapulco; Jay.

Mazatlan; Lt. Green! Gould MSS.

Taboga; C. B. A.!

We obtained only 1 specimen.

103. **Columbella tessellata.** Nov. sp.

Shell rather long ovate: dark sea-green, tinged with black or brown, fading to a brownish red; more or less tessellated with nearly quadrangular white spots: with about fifteen stout approximate ribs, which lean forward, and which are obsolete on the back of the last whorl; with all the surface ridged by strongly impressed revolving striæ: apex acute: spire conic: whorls eight, scarcely convex, with a distinct suture: aperture rather long: labrum variciform, thick behind, a little sinuate posteriorly, with three or four granules inside: columellar lip slightly granulous.

Mean divergence about  $48^{\circ}$ ; length, .225 inch; breadth, .105 inch; length of spire, .13 inch.

This species resembles the small variety of *C. nigricans*. It also resembles *C. lentiginosa* Hinds (Zool. Sulph. Moll. pl. 10. f. 21, 22), in coloring and sculpture; but the latter is represented as being much wider and as having a short spire.

*Station.*—This species was found under stones, near low water mark.

*Habitat.*—Panama; C. B. A.!

We collected 27 specimens.

104. **Columbella turrita.**

*Synonymy.*

*Columbella turrita* Sowb. in Proc. Zool. Soc. Lond. p. 115. June, 1832.

*Panama Shells.*

PURPURIDÆ.

<i>Columbella turrata</i>	Müll. Synop. Nov. Test. Viv. p. 83.	1836.
—	Sowb. Thes. Conch. p. 135. No. 73.	
	pl. 39. f. 137. - - - - -	1844.
—	Desh. in Lam. An. sans Vert. 10. 290.	
	No. 44. - - - - -	1844.

*Station.*—In coarse gravel and sandy mud, at a depth of 10 fathoms; Cuming! Sowerby.

*Habitat.*—Bay of Montija and St. Elena, Cuming! Sowerby.  
Central America; Deshayes.  
St. Elena; Jay.  
Panama; C. B. A.!

We were indebted to a hermit collector for one specimen.

105. *Columbella varia.*

*Syn.*

<i>Columbella varia</i>	Sowb. in Proc. Zool. Soc. Lond. p. 116.	June 1832.
—	Müll. Synop. Nov. Test. Viv. p. 86.	1836.
—	Sowb. Thes. Conch. p. 130. No. 54.	
	pl. 39. f. 116-7. - - - - -	1844.
—	Desh. in Lam. An. sans Vert. X. 282.	
	No. 31. - - - - -	1844.

*Station.*—Under stones; Cuming! Sowerby: also Müller.  
Under stones; Deshayes.

We found this species in the same situation near low water mark.

*Habitat.*—Panama; Cuming! Sowerby: also Müller.  
Panama; Deshayes: also Jay.  
Panama; C. B. A.!

We collected about 380 specimens on the reef.

This species, when deprived of the epidermis, presents in a full suite of specimens a great variety of shades of brown, from orange to blackish brown, for the most part beautifully variegated with spots, and a spiral band of pure white.

106. **Columbella ?**——. Sp. indet.

We obtained, under stones, at low water mark, on the reef at Panama, two specimens of a species, which appears like a small *Conus*, but it has stout ribs transverse to the direction. It may be a young *Columbella*, but it is not the young of any shell known to us.

107. **Ricinula carbonaria ?***Synonymy.*

*Ricinula carbonaria* Reeve Conch. Icon. pl. 4. f. 22. ? Oct. 1846.

*Station.*—Under stones at low water mark.

*Habitat.*—Unknown; Reeve.

Philippines; Jay.

Panama; G. Jewett! Gould MSS.

Taboga and Panama; C. B. A. !

If Dr. Jay's shell is the same as ours, there must be an error in his statement of habitat. We collected 70 specimens, mostly at Taboga and partly at Panama.

108. **Ricinula jugosa.** Nov. sp.

Shell with a rhomboidal outline: mostly dark brown; tubercles mostly white; with a white fascia next below the periphery of the last whorl; with some of the tubercles partly rufous: with eight or nine very prominent transverse ridges, which are crossed by ten or eleven spiral ridges, of which three or four appear on the spire; with the intersections sharply tuberculous; with fine spiral striæ: apex acute: spire conic: whorls eight or nine, convex, with a moderately impressed suture: aperture rather long: labrum rather sharp, strengthened by the last ridge, which is very long, scalloped by the spiral ridges, with corresponding plaits within: inner lip excavated above, with a few wrinkles above and granules below; canal moderately long. This species is much like a *Murex*.

Mean divergence  $55^{\circ}$  : length, .94 inch ; breadth, .47 inch.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

Only one specimen was obtained.

109. **Ricinula Reeviana.**

*Synonymy.*

*Buccinum pulchrum* Reeve Conch. Icon. pl. 11. f. 80. . Dec. 1846.

Mr. Reeve's specific name of [ ] shell is preoccupied in

*Ricinula*.

*Station*.—Under stones, near low water mark.

*Habitat*.—Gallapago Is. ; Cum [ ] Reeve.

Panama and Taboga ; C. B. A. !

110 specimens were collected.

110. **Cassis abbreviata.**

*Synonymy.*

	Bonanni Recr. III. f. 157.	1684.
	List. Conch. t. 1000. f. 65. (Dillw. Ed.)	1688.
<i>Cassis abbreviata</i>	Blainv. Fauna Franc. Moll. p. 194.	
— — — — —	Lam. An. sans Vert. VII. 224. No. 12.	Aug. 1822.
— — — — —	Kiener Iconog. p. 33. pl. 15. f. 31.	
— — — — — <i>lactea</i>	Kiener Iconog. p. 35. pl. 16. f. 35.	
— — — — — <i>abbreviata</i>	Lam. An. sans Vert. X. 30. No. 12.	
	Desh. Ed. - - - - -	1844.
— — — — —	Reeve Conch. Icon. pl. 8. f. 18.	Sept. 1848.

This species, like its analogue, *C. inflata*, has remarkable varieties of color and of sculpture.

*Station*.—Unknown.

*Habitat*.—E Lusitanico litore ; Bonanni.

Shores of Portugal, according to Bonanni ; Lamarck.

Unknown; Kiener.

Acapulco; Reeve.

Panama; C. B. A.!

7 specimens were found. Bonanni is undoubtedly in error.

# 111. *Cassis coarctata*.

## *Synonymy.*

<i>Cassis</i>	<i>coarctata</i>	Sowb. Tank. Catal. No. 1826. p. 21.	1825.
<i>Buccinum</i>	<i>coarctatum</i>	Wood. Ind. Test. Supp. pl. 4. f. 5.	1828.
<i>Cassis</i>	<i>coarctata</i>	Valenc. in Humb. Rec. Obs. II. 313.	1833.
—	—	Kiener Iconog. p. 19. pl. 8. f. 15.	
—	—	Lam. An. sans Vert. X. 40. No.	
		27. Desh. Ed. - - - - -	1844.
—	—	Reeve Conch. Icon. pl. 6. f. 14.	Aug. 1848.

*Station*.—In crevices of rocks; Cuming! Reeve.

*Habitat*.—"We believe it to be a New Zealand shell;"  
Sowerby.

Unknown; Wood.

Acapulco; Humboldt & Bonpland! Valenciennes.

The shores of Peru, at Acapulco; Kiener.

The shores of Peru, at Acapulco; Deshayes.

Gallapago Is.; Cuming! Reeve.

Mazatlan; Melchers! Menke.

Peru, Acapulco; Jay.

Lower California; Major Rich! Gould MSS.

San Juan, in Lower California; Lt. Green! Gould

MSS. also Museum of Essex Inst.

Taboga; C. B. A.!

We obtained one dead, but nearly perfect specimen.

In copying Kiener's statement, Deshayes has partly, and Dr. Jay has wholly, dropped its absurdity. It does not, however, appear obvious, whether Kiener intended to name two habitats, or to say that Acapulco is in Peru! Compare, however, his description of the habitat of *Dolium ringens* above.

112. **Oniscia tuberculosa.***Synonymy.*

<i>Oniscia tuberculosa</i>	Reeve Conch. Syst. pl. 253. f. 2-4.	1842.
—————	Lam. An. sans Vert. X. 13. No. 2.	1844.
—————	Reeve Conch. Icon. pl. 1. f. 5.	Aug. 1849.

*Station.*—In clefts of rocks at low water ; Cuming ! Reeve.

*Habitat.*—South Seas ; Deshayes.

Gallapago Is. ; Cuming ! Reeve.

Australia ; Jay.

San Juan, in Lower California ; Lt. Green ! Gould

MSS. ; also Mus. Essex Inst.

Taboga ; C. B. A. !

We think Dr. Jay must have been misinformed.

We found 2 specimens, one mature and one young ; both were dead, but nearly perfect.

## Family—STROMBIDÆ.

113. **Conus brunneus.***Synonymy.*

<i>Conus brunneus</i>	Wood Ind. Test. Supp. pl. 3. f. 1.	1828.
—————	Sowb. Proc. Zool. Soc. Lond. p. 18.	Mar. 1834.
—————	Müll. Synop. Nov. Test. Viv. p. 123.	May 1836.
—————	Sowb. Conch. Ill. pl. 57. f. 88.	1841.
—————	Reeve Conch. Icon. pl. 14. f. 72.	June 1843.
—————	Lam. An. sans Vert. X. 127. No. 182.	1845.
—————	Kiener Iconog. p. 24. pl. 15. f. 1.	

*Station.*—In clefts of rocks ; Cuming ! Sowerby : also Reeve.

Our specimens were found in a similar situation, near low water mark.

*Habitat.*—Unknown ; Wood.

Gallapago Is., Puerto Portrero, and Panama ; Cuming ! Sowerby : also Reeve : also Müller.

Panama, and the Gallapagos; Deshayes: also Kiener.

Panama; Jay.

Taboga; C. B. A.!

We found 4 specimens. Deshayes's words are, "L'île de Panama; \* \* \* que l'on rencontre assez fréquemment à Panama et aux Gallapagos." In several instances this author appears to have fallen into the geographical error of supposing Panama to be an island.

#### 114. *Conus gladiator*.

##### *Synonymy.*

<i>Conus gladiator</i>	Brod. in Proc. Zool. Soc. Lond. p. 55.	Apr. 1833.
—————	Müll. Synop. Nov. Test. Viv. p. 121.	May 1836.
—————	Sowb. Conch. Ill. pl. 33. f. 34.	1841.
—————	Reeve Conch. Icon. pl. 22. f. 127.	Aug. 1843.
—————	Kiener Iconog. p. 25. pl. 15. f. 4. and pl. 109. f. 4.	

*Station*.—In sandy mud in the clefts of rocks; Cuming! Broderip. In soft mud in the clefts of rocks; Cuming! Reeve.

We found this species at low water mark, mostly under stones which were more or less mingled with sand.

*Habitat*.—Panama; Cuming! Broderip: also Reeve: also Müller.

Panama; Sowerby: also Kiener: and Jay.

Panama and Taboga; C. B. A.!

We collected 70 specimens.

#### 115. *Conus mahogani*.

##### *Synonymy.*

<i>Conus mahogani</i>	Reeve Conch. Icon. pl. 22. f. 126.	Aug. 1843.
—————	Reeve in Proc. Zool. Soc. Lond. p. 169.	Dec. 1843.
—————	Kiener Iconog. p. 170. pl. 74. f. 3.	

*Station*.—Sandy mud; Cuming! Reeve.

Our specimens were found crawling on a beach of clean and very wet sand, between low water mark and half tide level.

*Habitat*.—Salango; Cuming! Reeve.

Pacific Ocean, shores of Columbia; Kiener.

Salango; Jay.

Taboga; C. B. A.!

We collected 3 living and 14 dead specimens.

### 116. *Conus nux*.

#### *Synonymy.*

<i>Conus nux</i>	Brod. Proc. Zool. Soc. Lond. p. 54.	Apr. 1833.
— —	Müll. Synop. Nov. Test. Viv. p. 120.	May 1836.
— —	Sowb. Conch. Ill. pl. 32. f. 31.	1841.
— —	Reeve Conch. Icon. pl. 20. f. 110.	Aug. 1843.
— —	Lam. An. sans Vert. XI. 129. No. 185.	1844.
— —	Kiener Iconog. p. 47. pl. 11. f. 3. and pl. 102. f. 2.	

*Station*.—Unknown.

*Habitat*.—Gallapago Is.; Cuming! Broderip: also Reeve: also Müller.

Gallapago Is.; Sowerby: also Deshayes: and Kiener: and Jay.

Taboga; C. B. A.!

We obtained only 2 small specimens.

### 117. *Conus princeps*.

#### *Synonymy.*

<i>Conus princeps</i>	Linn. Syst. Nat. I. 713. No. 256. (Ed. 10.)	1758.
— — — —	Linn. Syst. Nat. I. 713. (Ed. 10. alt.)	1760.
— — — —	Linn. Mus. Ulricæ, p. 552. No. 156.	1764.
— — — —	Linn. Syst. Nat. p. 1167. No. 297. (Ed. 12.)	1767.
<i>La Robe Persienne</i>	Favanne's D'Argenv. II. 546. pl. xvii. B.	1780.
<i>Conus princeps</i>	Gmel. in Linn. Syst. Nat. VI. 3378.	
	No. 9. - - - - -	1788.
— <i>regius</i>	Chem. Conch. Cab. X. 17. pl. 138. f. 1276.	1788.



<i>Conus princeps</i>	Turt. in Linn. Syst. Nat. IV. 313.	1806.
— <i>regius</i>	Lam. in Ann. Mus. XV. 31. No. 10.	1810.
— —	Dillw. Catal. I. 368.	1817.
— —	Blainv. Dict. des Sc. Nat. X. 251.	1818.
— —	Wood Ind. Test. pl. 14. f. 25.	1818.
— —	Lam. An. sans Vert. VIII. 446. No. 10. Aug.	1822.
— <i>princeps</i>	Swains. Zool. Ill. 1st Ser. II. pl. 86.	1821.
— <i>regius</i>	Encyc. Meth. pl. 318. f. 3.	1824.
— <i>princeps</i>	Brod. in Proc. Zool. Soc. Lond. p. 55. Apr.	1833.
— <i>regius</i>	Valenc. in Humb. Rec. Obs. II. 336.	1833.
— <i>lineolatus</i>	Valenc. in Humb. Rec. Obs. II. 336. (var.)	1833.
— <i>princeps</i>	Müll. Synop. Nov. Test. Viv. p. 122.	1836.
— <i>regius</i>	Küst. Conch. Cab. p. 59. N. 44. pl. 9. f. 3.	1838.
— <i>princeps</i>	Sowb. Conch. Ill. pl. 32. f. 30, 30 a, 30 b.	1841.
— —	Reeve Conch. Icon. pl. 7. f. 36. Mar.	1843.
— <i>regius</i>	Lam. An. sans Vert. XI. 13. No. 10. Desh. ed.	1845.
— —	Kiener Iconog. p. 15. pl. 3. f. 2, and pl. 11. f. 4.	
— —	Chenu Lec. Elem. pl. 12. f. 5.	1847.

Three varieties of coloring have been found, as follows:—

1. With broad stripes: Lister's fig.; Wood's fig.; Reeve var. *a.* and fig. 36 *a.*; Kiener pl. 3. f. 2; Chenu's fig. in Lec. Elem. According to Mr. Reeve, this is the Linnæan type.
2. With linear stripes; *C. lineolatus* Valenc.; Sowb. C. Ill. f. 30 *a.*, 30 *b.*; Reeve var. *b.* and fig. 36 *b.*; Kiener pl. 11. f. 4.
3. Without stripes: Sowb. C. Ill. pl. 30? Reeve var. *c.* and fig. 36 *c.*

*Station.*—In sandy or soft mud in the crevices of rocks; Cum-  
ing! Broderip: also Reeve.

Our specimens were found under stones at low water.

*Habitat.*—Unknown; Linnæus: also Gmel.

Indies; Turton.

Asiatic Ocean; Dillwyn: also Lamarck: also Bligh  
Catal.

"Pacific Ocean, shores of Mexico, Bay of Panama;"  
Kiener.

Asiatic Ocean, Philippines; Jay.

San Juan, in Lower California; Lt. Green! Gould MSS.

*Hab. of Var. 1.*—Asiatic Ocean; Wood.

Acapulco; Humboldt and Bonpland! Valenciennes.

Panama; Cuming! Reeve.

Mazatlan; Melchers! Menke.

*Hab. of Var. 2.*—Acapulco; Humboldt and Bonpland! Valenciennes.

St. Elena and Panama; Cuming! Broderip:  
also Müller.

Monte Christi and Panama; Sowerby.

St. Elena, Central America, Panama; Cuming! Reeve.

Panama; C. B. A.!

*Hab. of Var. 3.*—Panama and Monte Christi; Cuming! Broderip.

Monte Christi, Panama; Sowerby.

Monte Christi; Cuming! Reeve.

Panama; C. B. A.!

We collected 8 specimens of var. 3, and 1 of var. 2. It will be observed that there is no original testimony for any habitat out of the Panama zoological province.

# 118. *Conus purpurascens.*

## *Synonymy.*

<i>Conus purpurascens</i>	Brod. in Proc. Zool. Soc. Lond.	
—	p. 54. - - - - -	April 1833.
—	Müll. Synop. Nov. Test. Viv. p. 121.	May 1836.
—	Sowb. Conch. Ill. pl. 25. f. 13.	1841.
—	Reeve Conch. Icon. pl. 19. f. 105.	July 1843.
—	Lam. An. sans Vert. XI. 134. No.	
	193. Desh. Ed. - - - - -	1845.

*Conus purpurascens* Kiener Iconog. p. 189. pl. 39. f. 2.  
and pl. 61. f. 3.

*Station*.—Sandy mud in the clefts of rocks; Cuming! Broderip: also Reeve.

Our specimens were found under stones at extreme low water mark.

*Habitat*.—Panama; Cuming! Broderip: also Reeve: also Müller.

Annaa; Sowerby.

San Blas; Hinds!

San Blas; Hinds! Reeve.

Panama; Kiener: also Deshayes.

Panama and San Blas; Jay.

Panama; C. B. A.!

We collected 12 specimens on the reef. Is there not an error in Sowerby's statement? It appears to want confirmation.

A variety (?) differs in being more slender, in having a convex spire and a subvoid outline, with a few distant elevated spiral lines over the whole surface.

# 119. *Conus regalitytis*.

## *Synonymy.*

<i>Conus regalitytis</i>	Sowb. Proc. Zool. Soc. Lond. p. 19.	Mar. 1834.
—————	Müll. Synop. Nov. Test. Viv. p. 124.	May 1836.
—————	Sowb. Conch. Ill. pl. 57. f. 87.	1841.
—————	Reeve Conch. Icon. pl. 40. f. 218.	Jan. 1844.
—————	Lam. An. sans Vert. XI. 133. No. 192.	1845.
—————	Kiener Iconog. p. 237. pl. 39. f. 3.	

*Station*.—In the clefts of rocks on sandy mud; Cuming! Sowerby: also Reeve.

We found this species under stones at extreme low water.

*Habitat*.—Real Llejos; Cuming! Sowerby: also Reeve.

Real Llejos; Deshayes.

Shores of Peru; Kiener.

Real Llejos and Panama; Jay.

Panama; C. B. A.!

We collected 9 specimens, one of which exceeds three inches in length. May not *C. achatinus* in Menke's catalogue of Mazatlan shells be identical with this species? *C. achatinus* belongs to another and distant zoological province.

# 120. *Conus regularis*.

## *Synonymy.*

<i>Conus regularis</i>	Sowb. Conch. Ill. pl. 29. f. 29. pl. 36.	
	f. 45. - - - - -	1841.
— — — — —	Reeve Conch. Icon. pl. 26. f. 126.	Sept. 1843.
— — — — —	Lam. An. sans Vert. XI. 132. No. 189.	1845.
— — — — —	Kiener Iconog. p. 124. pl. 23. f. 3. (var.)	

Mr. Sowerby's reference to Z. P. 1841, we are unable to verify.

*Station*.—Soft mud at the depth of 23 fathoms and at 7 fathoms; Hinds! Reeve.

*Habitat*.—Gulf of Nicoya and Panama; Hinds! Reeve.

Gulf of Nicoya; Deshayes.

Philippine Is.; Kiener.

Mazatlan; Melchers! Menke.

Gulf of Nicoya and Panama; Jay.

Guaymas; Lt. Green! Gould MSS.

Taboga; C. B. A.!

Kiener has doubtless been misinformed.—We found only 1 imperfect specimen of this very rare shell.

# 121. *Conus vittatus*.

## *Synonymy.*

	Knorr Vergn. III Theil. pl. 11. f. 3.	1768.
<i>Conus vittatus</i>	Lam. in Ann. Mus. XV. 267. No. 63.	1810.
— — — — —	Dillw. Catal. I. 390. No. 67.	1817.
— — — — —	Wood. Ind. Test. pl. 15. f. 63.	1818.
— — — — —	Lam. An. sans Vert. VII. 470. No. 63.	Aug. 1822.

**STROMBUS.***Panama Shells.***335**

<i>Conus vittatus</i>	Lam. in Encyc. Meth. pl. 335. f. 3.	1824.
—————	Sowb. Conch. Ill. pl. 28. f. 21.	1841.
—————	Reeve Conch. Icon. pl. 14. f. 75.	June 1843.
—————	Lam. An. sans Vert. XI. 49. No. 63.	
	Desh. ed. - - - - -	1845.
—————	Kiener Iconog. p. 110. pl. 63. f. 5.	

*Station.*—In coarse sand, at a depth of from 7 to 11 fathoms ;  
Cuming! Reeve.

Our specimens were found at low water mark.

*Habitat.*—Asiatic Ocean ; Wood : also Lamarck : and Kiener.  
Bays of Panama and Montija ; Cuming! Reeve.  
Panama ; Jay.

Taboga ; C. B. A.!

The first-named habitat is probably erroneous ; it does not  
appear to be authenticated by any conchological traveller.

We obtained 4 fine living specimens, of which two have an  
orange tinge, and two have a tinge of brownish purple.

**122. Strombus galea.***Synonymy.*

<i>Strombus galea</i>	Wood Ind. Test. Supp. pl. 4. f. 13 ; also f. 14 jr. - - - - -	1828.
————— <i>galeatus</i>	Gray Descr. Catal. p. 2 (2d Ser. pag.) No. 2. - - - - -	June 1832.
—————	Sowb. Thes. Conch. p. 36. No. 54. pl. 10. f. 114. - - - - -	1842.
—————	Kiener Iconog. p. 5. pl. 2.	
—————	Lam. An. sans Vert. IX. 710. No. 33. (Desh. ed.) - - - - -	1843.
—————	Ducl. in Chenu Ill. Conch. pl. 26, 27. f. 1.	1843.
—————	Lam. An. sans Vert. III. Pt. 2. p. 751. No. 33. (Desh. ed. tert.) - - - - -	1844.
—————	Küst. Conch. Cab. p. 13. pl. 4a. f. 5. pl. 4b. f. 1, 2. - - - - -	1845.
—————	Reeve Conch. Icon. pl. 13.	Nov. 1850.

*Station.*—On the reefs at low water ; Cuming! Reeve.

*Habitat*.—Unknown; Wood.

Peru; Gray.

Mazatlan; Kiener: also Duclos.

Sea of California; Deshayes.

Gulf of Nicoya; Cuming! Reeve.

Pacific Ocean; Küster.

Mazatlan; Melchers! Menke.

Gulf of Nicoya & California; Jay.

Taboga; C. B. A.!

Many fragments only of this shell were seen.

### 123. *Strombus gracilior*.

#### *Synonymy*.

<i>Strombus gracilior</i>	Sowb. in Tank. Catal. No. 1792. p. 20.	1825.
—	— Wood Ind. Test. Supp. pl. 4. f. 1.	1828.
—	— Sowb. Thes. Conch. p. 32. No. 35. pl. 8.	
	f. 73. - - - - -	1842.
—	— Kiener Iconog. p. 31. pl. 21. f. 1.	
—	— Lam. An. sans Vert. IX. 713. No. 36.	
	(Desh. ed.) - - - - -	1843.
—	— Duclos in Chenu Ill. Conch. pl. 17. f. 6, 7.	1843.
—	— Lam. An. sans Vert. III. p. 752. No. 36.	
	(Desh. ed. tert.) - - - - -	1844.
—	— Küst. Conch. Cab. p. 36. pl. 4a. f. 6, 7.	1845.
—	— Reeve Conch. Icon. pl. 16. f. 38.	Jan. 1851.

*Station*.—Sandy mud at a depth of from 6 to 10 fathoms; Cuming! Reeve.

*Habitat*.—Unknown; Wood: also Duclos.

South Seas; Sowerby.

Shore of California; Kiener: also Küster.

Seas of California; Deshayes.

St. Elena & Panama, Central America; Cuming!

Reeve.

Mazatlan; Melchers! Menke.

California & Tahiti; Jay.

La Paz; Lt. Green! Gould MSS.; also Mus.  
Essex Inst.

Taboga; C. B. A.!

We obtained only 1 dead, but nearly perfect specimen. Mr. Reeve's statement is an example of a common ambiguity. The phraseology implies that St. Elena and Panama are in Central America; but neither place being in that country, the question arises, whether Central America is named as a third locality. Looking over the habitats mentioned by English, and French, and German authors, many such examples occur: and in view of the acknowledged superiority of Europeans in all departments of science, such geography is exceedingly perplexing to an American.

If the locality Tahiti, mentioned by Dr. Jay, can be authenticated, it will be a very important fact of distribution.

#### 124. *Strombus granulatus*.

##### *Synonymy.*

<i>Strombus granulatus</i>	Swains. in Bligh Catal. App. p. 8.	May 1822.
—————	Wood Ind. Test. Supp. pl. 4. f. 21.	1828.
—————	Swains. Exot. Conch. p. 36. (Han- ley ed.) - - - - -	1841.
—————	Sowb. Thes. Conch. p. 33, No. 39. pl. 9. f. 100. - - - - -	1842.
—————	Kiener Iconog. p. 28. pl. 22. f. 1.	
—————	Lam. An. sans Vert. IX. 713. No. 37. (Desh. ed.) - - - - -	1843.
—————	Duclos in Chenu Ill. Conch. pl. 11. f. 5, 6. - - - - -	1843.
—————	Lam. An. sans Vert. III. Pt. 2. p. 752. No. 37. (Desh. ed. tert.) - -	1844.
—————	Küst. Conch. Cab. p. 64. pl. 13. f. 13.	1845.
—————	Reeve Conch. Icon. pl. 14. f. 32.	Jan. 1851.

*Station*.—In sandy mud at the depth of from 6 to 8 fathoms;  
Cuming! Reeve.

*Habitat*.—Unknown: Wood: also Sowerby.

Seas of India; Kiener: also Duclos: also Küster.

Seas of India, according to Kiener; Deshayes.

St. Elena & Gallapago Is; Cuming! Reeve.

Mazatlan; Melchers! Menke.

Central America; Jay.

La Paz; Lt. Green! Mus. Essex Inst.

Panama; E. Jewett! Gould MSS.

Taboga; C. B. A.!

We collected 7 dead specimens. We have received a number of specimens from the Sandwich Islands, but cannot vouch for this locality.

### 125. *Strombus Peruvianus*.

#### *Synonymy.*

<i>Strombus Peruvianus</i>	Swains. Zool. Ill. 2nd Ser. No. 39	
	in Index, No. 1 on plate.	1823.
—————	Reeve Conch. Syst. pl. 250. f. 3.	1842.
—————	Sowb. Thes. Conch. p. 34. No. 42.	
	pl. 10. f. 110	1842.
—————	Kiener Iconog. p. 11. pl. 8.	
—————	Lam. An. sans Vert. IX. 712. No.	
	35. (Desh. ed.)	1843.
—————	Ducl. in Chenu Ill. Conch. pl. 22.	
	f. 1, 2.	1843.
—————	Lam. An. sans Vert. III. Pt. 2.	
	p. 752. No. 35. (Desh. ed. tert.)	1844.
—————	Küst. Conch. Cab. p. 24. pl. 5a. f. 1.	1845.
—————	Reeve Conch. Icon. pl. 5. 6.	Dec. 1850.

*Station*.—On the reefs at low water; Cuming! Reeve.

Our specimens were taken on a clean sandy beach at low water. On Dec. 6th (1850) there were many seen alive: but on revisiting the place, Dec. 31, only 2 or 3 dead shells could be found.

*Habitat*.—Peru, and near Panama; Swainson.

Unknown; Sowerby.



Shores of Peru; Kiener: also Deshayes.

"Le Perou et je crois la mer Rouge;" Duclos.

Bay of Caraccas; Cuming! Reeve.

Peru; Jay.

Taboga; C. B. A.!

We collected 24 specimens.

Notwithstanding the opinion of Duclos, we are very sceptical of the identity of any Red Sea species with those species which inhabit this continent.

### Family—MURICIDÆ.

#### 126. **Triton Chemnitzii.**

##### *Synonymy.*

<i>Argo-buccinum nodosum</i>	Chem. Conch. Cab. IV. 98. pl.	
	131. f. 1255-6. - - - - -	1780.
<i>Murex argus</i> var. $\beta$ pars.	Gmel. in Linn. Syst. 3547. No. 78.	1788.
<i>Triton Chemnitzii</i>	Gray in Zool. Beech. Voy. p. 110.	1839.
<i>Fusus Wiegmanni</i>	Anton Verzeich. p. 77.	1839.
<i>Cassidaria setosa</i>	Hinds teste Reeve.	
<i>Triton Chemnitzii</i>	Reeve Conch. Icon. pl. 11. f. 37.	May 1844.
<i>Fusus Wiegmanni</i>	Phil. Abbild. II. pl. 2. f. 2. 4. var.	1845.
<i>Triton perforatus</i>	Con. in Proc. Acad. Nat. Sc. Phil.	
	IV. 156. - - - - -	Feb. 1849.
—	Con. in Journ. Acad. Nat. Sc. Phil.	
	new ser. I. 280. pl. 39. f. 6. var.	1849.
—	<i>nodosum</i> Mke. in Zeitschr. Malak. p. 189.	1850.

*Station.*—In sandy mud, at the depth of 6 fathoms; Cuming!  
Reeve.

We found this species under stones at extreme low water mark.

*Habitat.*—Panama; Cuming! Reeve.

Panama; Philippi: also Jay.

Lower California or Peru; Conrad.

Mazatlan; Melchers! Menke.

Panama, and Taboga; C. B. A.!

We collected 9 specimens.

127. **Triton constrictus.***Synonymy.*

<i>Triton constrictus</i>	Brod. in Proc. Zool. Soc. Lond. p. 5.	Jan. 1833.
? — <i>decussatum</i>	Valenc. Humb. Rec. Obs. II. 306.	1833.
— <i>constrictus</i>	Müll. Synop. Nov. Test. Viv. p. 101.	1836.
— — — — —	Reeve Conch. Icon. pl. 12. f. 41.	May 1844.

*Station.*—In sandy mud, in from 7 to 10 fathoms; Cuming! Broderip: also Reeve.

*Habitat.*—Monte Christi, and Xipixapi; Cuming! Broderip: also Reeve: also Müller.

Acapulco; Humboldt and Bonpland! Valenciennes.

(*Triton decussatum*.)

Panama; C. B. A.!

We were indebted to the hermit crabs for 4 specimens.

128. **Triton fusoides.** Nov. sp.

Shell ovate-fusiform, slender: whitish, stained with brown, with a white spiral stripe near the middle of the whorls: with prominent narrow not approximate ribs, about nine on each whorl, crossed by numerous raised fine spiral lines, of which the alternate ones are mostly larger: apex acute: spire conic: whorls eight, convex, with a well impressed suture: aperture long subovate: canal short.

Mean divergence about 35°; length .76 inch; breadth .28 inch.

*Station.*—Unknown.

*Habitat.*—Taboga; C. B. A.

We obtained only 1 specimen.

129. **Triton gibbosus.***Synonymy.*

<i>Triton gibbosus</i>	Brod. in Proc. Zool. Soc. Lond. p. 7.	Jan. 1833.
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- Triton gibbosus* Müll. Synop. Nov. Test. Viv. p. 102. May 1836.  
 ———— Reeve Conch. Icon. pl. 14. f. 38. pl. 11. f.  
 38. var. - - - - - June 1844.

Mr. Reeve's reference to Proc. Z. S. 1844 appears to be a misprint.

*Station*.—Coarse sand at the depth of 7 fathoms; Cuming! Broderip: also Reeve.

*Habitat*.—Panama, and Monte Christi; Cuming! Broderip: also Reeve.

Panama; C. B. A.!

We were indebted to the hermit crabs for 5 specimens.

### 130. *Triton lignarius*.

#### *Synonymy.*

- Triton lignarius* Brod. in Proc. Zool. Soc. Lond. p. 5. Jan. 1833.  
 ———— Müll. Synop. Nov. Test. Viv. p. 101. May 1836.  
 ———— Reeve Conch. Icon. pl. 13. f. 40. June 1844.  
 ———— Hinds in Voy. Sulph. Moll. p. 12. pl. 4.  
 f. 15. 16. - - - - - 1844.

*Station*.—Sandy mud at a depth of from 7 to 12 fathoms; Cuming! Broderip: also Reeve.

Sandy mud 7 fathoms; Hinds!

*Habitat*.—Puerto Portrero, and Panama; Cuming! Broderip: also Müller.

Puerto Portrero, St. Elena, and Panama; Cuming! Reeve.

Monte Christi; Hinds!

Mazatlan; Melchers! Menke.

Panama; Jay.

Panama; C. B. A.!

We obtained one small but perfect specimen of this very elegant species. The varix at the labrum is enormously developed. The shell was occupied by a hermit crab.

131. **Triton vestitus.***Synonymy.*

<i>Triton vestitus</i>	Hinds in Proc. Zool. Soc. Lond. p. 21.	Feb. 1844.
————	Reeve Conch. Icon. pl. 20. f. 101.	Aug. 1844.
————	Hinds in Voy. Sulph. Moll. pl. 4. f. 1. 2.	1844.

*Station.*—Among the rocks on the shore; Hinds!—copied by Reeve.

Our specimens were obtained under stones near low water mark.

*Habitat.*—Real Llejos, Gulf of Nicoya, and Bay of Honda; Hinds! copied by Reeve.

Taboga; C. B. A.!

We obtained 4 specimens of this beautiful species.

TRITON VESTITUS? VAR. SENIOR.—We found also near Panama a shell which differs but little from the preceding. It is not so deeply colored, and is lengthened by the addition of another whorl, and consequently it has an additional varix. The sculpture of the lower whorls is less prominent; and the shell is distorted.

132. **Ranella cœlata.***Synonymy.*

<i>Ranella cœlata</i>	Brod. in Proc. Zool. Soc. Lond. p. 179.	Oct. 1832.
————	Müll. Synop. Nov. Test. Viv. p. 100.	May 1836.
————	Sowb. Conch. Ill. No. 8. pl. 85. f. 8.	1841.
————	Reeve Conch. Syst. pl. 241. f. 8.	1842.
———— <i>semigranosa</i>	Kiener (non Lam.) p. 19. pl. 11. f. 2.	
———— <i>cœlata</i>	Lam. An. sans Vert. IX. 554. No. 21. (Desh. Ed.)	- - - - - 1843.
————	Lam. An. sans Vert. III. Pt. 2. p. 697. No. 21. (Desh. ed. tert.)	- - - - - 1844.
————	Reeve Conch. Icon. pl. 3. f. 10.	July 1844.

According to Deshayes and to Reeve, Kiener has fallen into an error in confounding with this species the *R. semigranosa* of

**Lamarck.** Is not Deshayes also in error, when he refers Kiener's figures to the Lamarckian species? Deshayes has copied from Kiener's *text* the reference to pl. II., which is a misprint for pl. XI.

The apex is always eroded, and many are eroded over much of the spire. The individuals differ much in number and in the degree of development of the granules. Some of the shells are from 2 to 2.3 inches long.

*Station.*—Under stones; Cuming! Broderip. Under stones at low water; Cuming! Reeve. We found this species under stones between the low water mark of the neap tides and that of the spring tides.

*Habitat.*—Panama; Cuming! Broderip: also Reeve.

Panama; Sowerby: also Kiener: and Deshayes:  
and Jay.

Panama; E. Jewett! Gould MSS.

Panama; C. B. A.!

We collected 190 specimens on the reef.

### 133. **Ranella nana.**

#### *Synonymy.*

<i>Ranella nana</i>	Brod. and Sowb. in Zool. Journ. IV. 376.	1829.
————	—— Sowb. in Proc. Zool. Soc. Lond. p. 51.	June 1841.
————	—— Sowb. Conch. Ill. No. 6. pl. 85. f. 6.	1841.
————	—— Reeve Conch. Syst. pl. 241. f. 6.	1842.
————	—— Reeve Conch. Icon. pl. 6. f. 29.	July 1844.

*Station.*—Coarse sand at the depth of 7 fathoms; Cuming! Sowerby. Coarse sand at the depth of 10 fathoms; Cuming! Reeve.

*Habitat.*—"Ad insulam Panama, Philippinarum;" Cuming! Sowerby.

Panama; Sowerby: also Jay.

Panama; Cuming! Reeve.

Mazatlan ; Melchers ! Menke.

Panama ; C. B. A. !

Mr. Sowerby's statement of habitat, in the Proc. Z. S., is not intelligible. We found two specimens occupied by hermit crabs. One of the shells is perfect and very elegant.

### 134. *Ranella nitida*.

#### *Synonymy.*

<i>Ranella nitida</i>	Brod. in Proc. Zool. Soc. Lond. p. 179.	Oct. 1832.
— — — — —	Müll. Synop. Nov. Test. Viv. p. 99.	May 1836.
— — — — —	Sowb. Conch. Ill. No. 4. pl. 84. f. 4.	1841.
— — — — —	Kiener Iconog. p. 9. pl. 2. f. 2.	
— — — — —	Lam. An. sans Vert. IX. 557. No. 25.	
	(Desh. ed.) - - - - -	1843.
— — — — —	Lam. An. sans Vert. III. Pt. 2. p. 698.	
	No. 25. (Desh. ed. tert.) - - -	1844.
— — — — —	Reeve Conch. Icon. pl. 8. f. 45.	July 1844.

*Station*.—Under stones ; Cuming ! Broderip. Our specimens were found under stones near low water mark.

*Habitat*.—Bay of Caraccas ; Cuming ! Broderip : also Reeve : also Müller.

Columbia ; Sowerby.

Shores of Columbia ; Kiener.

West Columbia ; Deshayes.

Bay of Caraccas ; Jay.

Panama ; E. Jewett ! Gould MSS.

Panama ; C. B. A. !

We collected 300 specimens.

### 135. *Ranella plicata*.

#### *Synonymy.*

*Ranella plicata* Reeve Conch. Icon. pl. 7. f. 33.

July 1844.

*Station*.—Unknown.

*Habitat*.—Unknown; Reeve.

Panama; C. B. A.!

We collected 6 specimens of this very aberrant species.

### 136. *Murex dubius*.

#### *Synonymy*.

- |                        |  |            |
|------------------------|--|------------|
| <i>Murex aculeatus</i> | Wood (non Lam.) Ind. Test. Supp. pl. 5. f. 19. | 1828.      |
| —— <i>dubius</i>       | Sowb. Conch. Ill. No. 119. pl. 61. f. 23.      | 1841.      |
| —— ———                 | Reeve Conch. Icon. pl. 26. f. 116.             | Aug. 1845. |

*Station*.—Under stones near low water mark.

*Habitat*.—Unknown; Wood.

Panama; Cuming! Sowerby: also Reeve.

Mazatlan; Melchers! Menke.

Panama; Jay.

Panama; C. B. A.!

We collected 72 specimens on the reef. The spines are remarkably acute.

### 137. *Murex erosus*.

#### *Synonymy*.

- |                     |   |            |
|---------------------|---|------------|
| <i>Murex erosus</i> | Brod. in Proc. Zool. Soc. Lond. p. 174.   | Oct. 1832. |
| —— ———              | Müll. Nov. Test. Viv. p. 93.              | May 1836.  |
| —— ———              | Sowb. Conch. Ill. No. 104. pl. 60. f. 16. | 1841.      |
| —— ———              | Reeve Conch. Icon. pl. 32. f. 160.        | Aug. 1845. |

*Station*.—Under stones; Cuming! Broderip: also Reeve.

Our specimens were found under stones near low water mark.

*Habitat*.—Panama; Cuming! Broderip: also Sowerby: and Reeve.

Panama; C. B. A.!

We obtained 2 specimens on the reef.

138. *Murex radix*.*Synonymy.*

	Favanne's D'Argenv. pl. 37. f. D.	
<i>Murex radix</i>	Schröt. Einl. Conch. I. 548. No. 17.	1783.
— — —	Gmel. in Linn. Syst. Nat. p. 3527. No. 10.	1788.
— — — <i>melanomathos</i>	Dillw. Catal. 686. pars.	1817.
— — — <i>radix</i>	Lam. An. sans Vert. VII. 168. No. 36. Aug.	1822.
— — —	Swains. Zool. Ill. 2d. ser. pl. 113. (Sub. gen. Centronotus.)	1823.
— — —	Schub. et Wagn. Supp. Chem. p. 132. pl. 230. f. 4064-5.	1829.
— — —	Wodarch Introd. Conch. (4th ed. Front. f. 3.	1831.
— — —	Valenc. in Humb. Rec. Obs. II. 299.	1833.
— — —	Sowb. Conch. Ill. Catal. No. 85.	1841.
— — —	Kiener Iconog. p. 60. pl. 37, 38. f. 1.	
— — —	Hanley Conch. Book Spec. p. 91.	1842.
— — —	Lam. An. sans Vert. IX. 584. No. 36. (Desh. ed.)	1843.
— — —	Lam. An. sans Vert. III. Pt. 2. p. 707. No. 36. (Desh. ed. tert.)	1844.
— — —	Reeve Conch. Icon. pl. 17. f. 69.	June 1845.
— — —	Chenu Lec. Elem. p. 198. f. 652.	1847.

Perhaps to this synonymy we should add *Murex ambiguus*, Reeve Conch. Icon. pl. 13. f. 51. Mr. Reeve remarks:—"Any modification of structure may, I apprehend, be considered of specific importance, when it is not immediately approached on either side."—*Conch. Icon. Murex*. pl. 13. Or even if we could find, in a great number of specimens, a dominant type, with only occasional gradations into another type, the former might be considered as of specific value. In this case, the number of varices not exceeding eight, (while in *M. radix* they are said to equal or exceed ten,) the large open flowery fronds, and the elongate form, are supposed by Mr. Reeve to indicate a specific type. But among our shells, the specimens, which have nine varices together with an intermediate form, are much more numerous than those which correspond to the description and



figure of *M. ambiguus*. So far, therefore, as we can judge from the 100 specimens collected in one locality, the *M. ambiguus* appears to be, not a dominant type, but the extreme limit of variation. It is quite possible, however, that a greater number of specimens collected in various localities would confirm the opinions of Mr. Reeve.

Dr. Menke, in distinguishing *M. ambiguus* from *M. nigrinus*, among the shells from Mazatlan, (Zeitschr. für Malak. 1850, p. 188,) finds nine varices in his specimens of the former. *M. radix* is not mentioned as occurring among them.

*Station*.—On mud banks at low water; Cuming: Reeve.

Our specimens were found in part in the crevices of rocks, but chiefly about stones, where there was more or less of sandy mud, near low water mark.

*Habitat*.—East Indian Seas; Dillwyn.

Shores of Acapulco; Humboldt and Bonpland! Lamarck: also Valenciennes.

Acapulco; Say in Catal. Mus.

Shores of Acapulco and of Panama; Kiener.

Bay of Caraccas; Cuming! Sowerby: also Reeve.

Bay of Caraccas; Jay.

Panama; C. B. A.!

We collected 100 specimens on the reef. Two of them weigh 22 ounces each, and one of these is 5½ inches long.

*Habitat of M. ambiguus*.—Unknown; Reeve.

Mazatlan; Melchers! Menke.

Panama; C. B. A.!

*Murex nigrinus* Phil. we were unable to find at Panama.

### 139. *Murex rectirostris*.

#### *Synonymy*.

<i>Murex rectirostris</i>	Sowb. in Proc. Zool. Soc. Lond. p. 138.	Nov. 1840.
—————	Sowb. Conch. Ill. pl. 197. f. 111.	1841.
—————	Reeve Conch. Icon. pl. 22. f. 91.	June 1845.

*Station*.—Sandy mud at the depth of 11 fathoms; Cuming! Reeve.

*Habitat*.—Xipixapi; Cuming! Reeve.

Panama; C. B. A.!

We obtained only 1 immature specimen.

#### 140. *Murex recurvirostris*.

##### *Synonymy*.

<i>Murex recurvirostris</i>	Brod. in Proc. Zool. Soc. Lond. p. 174. Oct. 1832.	
— — — — —	Müll. Synop. Nov. Test. Viv. p. 92. May 1836.	
— — — — —	Sowb. Conch. Ill. pl. 59. f. 9. 1841.	
— — — — —	Reeve Conch. Icon. pl. 19. f. 75. June 1845.	

*Station*.—Sandy mud at the depth of 9 fathoms; Cuming! Broderip: also Reeve.

*Habitat*.—Gulf of Nicoya; Cuming! Broderip: also Sowerby: and Reeve: and Müller.

Gulf of Nicoya; Jay.

Panama; C. B. A.!

We obtained 1 imperfect specimen.

#### 141. *Murex regius*.

##### *Synonymy*.

<i>Murex regius</i>	Swains. in Bligh Catal. p. 16. No. 201 and No. 806. (Spec. non desc.) - - - -	May 1822.
— — — — —	Wood Ind. Test. Supp. pl. 5. f. 13.	1828.
— — — — —	Wodarch Introd. Conch. (4th ed.) Front. f. 2. - - - - -	1831.
— — — — —	<i>tricolor</i> Valenc. in Humb. Rec. Obs. II. 300.	1833.
— — — — —	<i>regius</i> Swains. Exot. Conch. p. 5. pl. 15.	1834.
— — — — —	" " " " " (Hanley Ed.)	1841.
— — — — —	Sowb. Conch. Ill. Catal. No. 89.	1841.
— — — — —	Penny Cyclop. XXII. 55. f.	1842.
— — — — —	Kiener Iconog. p. 65. pl. 42, 43. f. 1.	

<i>Murex regius</i>	Lam. An. sans Vert. IX. 610. No. 80.	
	(Desh. Ed.) - - - - -	1843.
— — —	Lam. An. sans Vert. III. Pt. 2. p. 716. No.	
	80. (Desh. ed. tert.) - - - - -	1844.
— — —	Reeve Conch. Icon. pl. 15. f. 59.	June 1845.

*Station*.—On mud banks at low water; Cuming! Reeve.

Our specimens were found in the crevices of rocks between the low water mark of the spring tides and of the neap tides. We cannot help suspecting some omission in Mr. Cuming's statement of the station of this species and of *M. radix*. Neither species was found by us away from rocks or stones, and we cannot well conceive how, without such shelter, the fronds could be protected from injuries.

*Habitat*.—Peru; Bligh Catalogue.

South Seas; Wood.

Acapulco; Humboldt and Bonpland! Valenciennes.

Panama; Cuming! Sowerby: also Reeve.

Western Coast of Central and South America;

Penny Cyclopædia.

Shores of Peru; Kiener: also Deshayes.

Panama; Jay: also Mörch.

Panama; C. B. A.!

We collected 18 specimens on the reef. Only a few were taken, because the species is extremely common in collections. We have since regretted the restriction to such a small number, on account of the fine coloring of the exterior and perfect condition of most of these shells. Some of them are also remarkable for size. One specimen is 5.3 inches long, and 4.2 inches wide.

#### 142. *Murex salebrosus*.

##### *Synonymy*.

<i>Murex salebrosus</i>	King in Zool. Journ. Lond. V. 347.	1835.
— <i>vitulinus</i>	Gray (non Lam.) in Zool. Beech. Voy.	
	pl. 33. f. 4, 6. - - - - -	1839.

<i>Murex salebrosus</i>	Sowb. Conch. Ill. pl. 65. f. 48.	1841.
—————	Kiener Iconog. p. 121. pl. 47. f. 1.	
—————	Lam. An. sans Vert. IX. 613. No. 84.	
	Desh. ed. - - - - -	1843.
—————	Lam. An. sans Vert. III. Pt. 2. p. 717.	
	No. 84. (Desh. ed. tert.) - - - -	1844.
—————	Reeve Conch. Icon. pl. 24. f. 98.	Aug. 1845.

*Station*.—Under stones; Cuming! Reeve.

We found this species under stones not far from low water mark.

*Habitat*.—"Southern Coast of South America;" Sowerby.

Unknown; Kiener.

Shores of South America; Deshayes.

Panama; Cuming! Reeve.

Mazatlan; Melchers! Menke.

Panama; Jay.

Lower California; Major Rich! Gould MSS.

Taboga and Panama; C. B. A.!

14 specimens were collected.

### 143. *Murex vibex*.

#### *Synonymy*.

<i>Murex vibex</i>	Brod. in Proc. Zool. Soc. Lond. p. 175.	Oct. 1832.
—————	Müll. Synop. Nov. Test. Viv. p. 94.	May 1836.
—————	Reeve Conch. Icon. pl. 34. f. 175.	Oct. 1845.

Most of the transverse ridges are simple ridges only, over which the spiral lines are continued without interruption. Occasionally some one ridge appears to be a true varix. The species has been regarded as intermediate between *Turbinella* and *Murex*. It seems to be nearer to the former than to the latter genus.

*Station*.—In sandy mud, at a depth of from 6 to 12 fathoms; Cuming! Broderip: also Reeve.

One of our specimens we found alive under a stone. The others were occupied by hermit crabs.

*Habitat*.—St. Elena and Panama; Cuming! Broderip: also Reeve.

Panama; Jay.

Panama; C. B. A.!

13 specimens were collected.

#### 144. *Murex vittatus*.

##### *Synonymy.*

*Murex vittatus* Brod. in Proc. Zool. Soc. Lond. p. 176. Oct. 1832.  
 ———— Reeve Conch. Icon. pl. 29. f. 140. Aug. 1845.

*Station*.—Sandy mud at the depth of 11 fathoms; Cuming! Broderip: also Reeve.

*Habitat*.—I. of Muerte Bay, at Guayaquil; Cuming! Broderip: also Reeve.

West Columbia; Cuming in sched.

Panama; C. B. A.!

1 specimen was obtained, which is much larger than Mr. Cuming's specimens.

#### 145. *Pyrula patula*.

##### *Synonymy.*

*Pyrula patula* Brod. and Sowb. in Zool. Journ. IV. 377. 1829.  
 ———— Valenc. in Humb. Rec. Obs. II. 291. 1833.  
 ———— Gray in Zool. Beech. Voy. pl. 35. f. 1;  
                   also pl. 34. f. 10. and pl. 35. f. 3. *young*. 1839.  
 ———— Kiener Iconog. p. 14. pl. 2. f. 1, 2.  
 ———— Lam. An. sans Vert. IX. 522. No. 31.  
                   (Desh. ed.) - - - - - 1843.  
 ———— Lam. An. sans Vert. III. Pt. 2. p. 686. No.  
                   31. (Desh. ed. tert.) - - - - - 1844.  
*Cyrtulus* ——— Hinds in Zool. Sulph. Moll. p. 13. 1844.  
*Pyrula* ——— Reeve Conch. Icon. pl. 6. f. 20. July 1847.

Deshayes has very aptly remarked of this and of the kindred species, *P. melongena*, that their differences, although not very obvious, derive importance from their constancy; and, we may add, from their restriction each to distinct zoological provinces. One of these types belongs to the Pacific shores of tropical America, and the other to the Caribbean shores. Mr. Reeve, however, has unfortunately assigned the Caribbean species to the "Eastern Seas." It is perhaps unnecessary to say that we have collected plentifully living specimens of *P. melongena*, in Jamaica, where it is a common article of food. Dr. Gould has also received it direct from Cuba, and Mr. Redfield from Carthagená, S. A.

*Station*.—On mud banks; Cuming! Reeve. Its analogue, *P. melongena*, has a similar station in the West Indies.

*Habitat*.—Acapulco; Humboldt and Bonpland! Valenciennes.

Shores of Mexico; Kiener.

Shores of the Pacific Ocean; Deshayes.

Bay of Caraccas; Cuming! Reeve.

Peru; Cuming in sched.

Mazatlan; Melchers! Menke.

Mazatlan; Lt. Green! Gould MSS.: also Mus. Essex Inst.

Pacific; Jay.

Bay of Panama; C. B. A.!

We saw this species in a large heap of edible Molluscs, near the houses of some natives in Panama. None of the specimens being perfect, we took only one, which is nearly seven inches long.

#### 146. *Ficula ventricosa*.

##### *Synonymy*.

	Martini III. pl. 66. f. 733.	1777.
<i>Pyrula ventricosa</i>	Sowb. in Tank. Catal. No. 1614. App. p. 16.	1825.
<i>Bulla decussata</i>	Wood Ind. Test. Supp. pl. 3. f. 3.	1828.
<i>Pyrula ventricosa</i>	Kiener p. 27. pl. 12. f. 2.	
—————	Lam. An. sans Vert. IX. 521. No. 29. (Desh. ed.)	1843.

*Ficula ventricosa* Chenu. Ill. Conch. pl. 1. f. 1. pl. 2. f. 1. 1843.

*Pyrula* ——— Lam. An. sans Vert. III. Pt. 2. p. 686. No. 29.

(Desh. ed. tert.) - - - - 1844.

*Ficula decussata* Reeve Conch. Icon. pl. 1. f. 3. May, 1847.

*Station*.—None of our specimens were taken alive; but it is probable that the species inhabits sands below low water mark.

*Habitat*.—Unknown; Sowerby.

Panama; Wood.

Shores of San Blas; Kiener.

Seas of India and of China; Deshayes.

Unknown; Reeve.

Mazatlan; Melchers! Menke.

San Blas, and Panama; Jay.

Panama; C. B. A.!

We collected 8 specimens on the sand beach west of Panama.

#### 147. **Fusus bellus.** Nov. sp.

Shell rather elongate and regularly fusiform; white, with some reddish brown spots in spiral series, mostly in three series, one above and two next below the middle of the whorls: with, on each whorl, about ten rather narrow prominent ribs, some of which are varicoid, with spiral raised lines, with the intersections nodulous, and spiral striæ: apex acute: spire conic: whorls seven, very convex, with a moderately impressed suture: aperture long ovate; canal wide, moderately lengthened.

Mean divergence about  $50^{\circ}$ ; length .44 inch; breadth .21 inch; length of spire .22 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

One specimen only was obtained.

#### 148. **Fasciolaria granosa.**

*Synonymy.*

*Fasciolaria granosa* Brod. in Proc. Zool. Soc. Lond. p. 32. Feb. 1832.

<i>Fasciolaria granosa</i>	Müll. Synop. Nov. Test. Viv. p. 106.	May 1836.
—————	Gray in Zool. Beech. Voy. p. 114.	1839.
—————	Kiener Iconog. p. 15. pl. 5.	
—————	Desh. in Lam. An. sans Vert. IX. 437. No.	
	11. (Desh. ed.) - - - - -	1843.
—————	Lam. An. sans Vert. III. Pt. 2. p. 656. No.	
	11. (Desh. ed. tert.) - - - - -	1844.
—————	Reeve Conch. Icon. pl. 3. f. 6.	Oct. 1847.

*Station*.—On mud banks; Cuming! Broderip. We found only one specimen alive. It was among stones in a muddy place, near low water mark. From the number of imperfect specimens, which we saw occupied by hermit crabs near low water mark, it seemed probable that its usual station was at a lower level.

*Habitat*.—Panama; Cuming! Broderip: also Reeve: also Müller.

South Pacific; Gray.

Shores of Peru; Kiener.

"L'île de Panama;" Deshayes.

Panama; Hankey! Reeve.

Peru, and Panama; Jay.

Panama; C. B. A.!

We collected 7 specimens.

#### 149. *Turbinella cæstus*.

##### *Synonymy.*

<i>Turbinella cæstus</i>	Brod. in Proc. Zool. Soc. Lond. p. 8.	Jan. 1833.
—————	Müll. Synop. Nov. Test. Viv. p. 106.	May 1836.
—————	Reeve. Conch. Icon. pl. 6. f. 34.	Aug. 1847.

*Station*.—In soft mud among the rocks; Cuming! Broderip: also Reeve. We found it on a sand beach near low water mark.

*Habitat*.—Bay of Caraccas; Cuming! Broderip: also Reeve: also Müller.

Mazatlan; Melchers! Menke.

Bay of Caraccas; Jay.



Taboga; C. B. A.!

We obtained 1 living and 1 dead specimen.

This species and *T. muricata* furnish another interesting example of a pair of nearly allied types, of which one inhabits the Pacific shores of tropical America, while the other is a Caribbean species.

### 150. *Turbinella castanea*.

#### *Synonymy.*

<i>Turbinella castanea</i>	Gray in Zool. Beech. Voy. p. 114.	1839.
—————	Siebold in Wieg. Archiv. p. 213.	1839.
—————	<i>acuminata</i> Reeve Conch. Syst. pl. 229. f. 2.	1842.
—————	<i>castanea</i> Reeve Conch. Icon. pl. 5. f. 26.	July 1847.

*Station*.—In crevices of rocks; Cuming! Reeve.

We found this species in the same situation, not far from low water mark.

*Habitat*.—Pacific Ocean; Gray.

Panama; Cuming! Reeve.

Panama; Jay.

Panama; E. Jewett! Gould MSS.

Taboga and Panama; C. B. A.!

We collected 32 specimens, 12 of which were taken alive. Many of them are covered with prominent spiral linear ridges, which are wanting on others. But the number of specimens with intermediate characters is so large as to show that the distinction is not of specific value.

### 151. *Turbinella cerata*.

#### *Synonymy.*

<i>Murex ceratus</i>	Wood Ind. Test. Supp. pl. 5. f. 15.	1828.
<i>Turbinella cerata</i>	Griff. An. King. Moll. pl. 41. f. 5.	1834.
—————	Gray in Zool. Beech. Voy. p. 114.	1839.
—————	Kiener Iconog. p. 25. f. 16. f. 1.	
—————	Reeve Conch. Icon. pl. 7. f. 37.	Aug. 1847.

*Station*.—Under stones at low water; Cuming! Reeve.

We found this species in the same situation and in the crevices of rocks.

*Habitat*.—Unknown; Wood.

South Pacific; Gray: also Jay.

Mazatlan; Kiener.

Gallapago Is.; Cuming! Reeve.

Taboga and Panama; C. B. A.!

We collected 12 specimens.

152. ***Turbinella rudis*.**

*Synonymy*.

*Turbinella rudis* Reeve Conch. Icon. pl. 10. f. 51.

Aug. 1847.

*Station*.—Under stones, and in the crevices of rocks, near low water mark.

*Habitat*.—Unknown; Reeve.

Taboga; C. B. A.!

We collected 30 specimens.

153. ***Turbinella spadicea*.**

*Synonymy*.

*Turbinella spadicea* Reeve Conch. Icon. pl. 9. f. 44.

Aug. 1847.

*Station*.—Unknown.

*Habitat*.—Unknown; Reeve.

Taboga; C. B. A.!

We collected 15 specimens in various states of preservation.

**CANCELLARIA.**—The species of this genus being pelagic, we were unable to make any observations on their habits of station. The number of individuals is small as compared with the number of the species obtained. We collected 25 specimens, which belong to 9 species.

154. ***Cancellaria affinis*.** Nov. sp.

Shell ovate fusiform: brown, sometimes with one or two

spiral bands of white : with, on each whorl, about thirty narrow prominent transverse ridges more or less inequidistant; with numerous raised spiral lines, of which five are seen on the spire, and which on the last whorl are less prominent and wide than the transverse ridges : apex subacute : spire with the outlines nearly rectilinear : whorls six, convex, with the suture subcanaliculate ; last whorl rather large : aperture semiobovate, with long sharp ridges within on the right side : labrum sharp, thickened a little behind the edge, scalloped by both the internal and the external sculpture : columella stout, with three plaits, of which the upper one is lamelliform and very prominent, and the lower one is small and very oblique : canal short : with a small umbilical chink bounded by the raised labrum and a spiral bridge.

Mean divergence about  $68^{\circ}$  ; length 1.05 inch ; breadth .65 inch ; length of spire .45 inch.

This species is not so densely and finely sculptured as *C. elegans* Sowb., and is less ventricose than *C. asperella* Lam.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

3 specimens were obtained.

### 155. *Cancellaria clavatula*.

#### *Synonymy*.

<i>Cancellaria clavatula</i>	Sowb. in Proc. Zool. Soc. Lond. p. 52. Mar.	1832.
—————	Müll. Synop. Nov. Test. Viv. p. 74.	1836.
—————	Sowb. Conch. Ill. No. 11. pl. 10. f. 12.	1841.
—————	Kiener Iconog. p. 31. pl. 5. f. 2.	
—————	Reeve Conch. Syst. pl. 230. f. 12.	1842.
—————	Lam. An. sans Vert. IX. 416. No. 23.	
	(Desh. ed.) - - - - -	1843.
—————	Lam. An. sans Vert. III. Pt. 2. p. 648.	
	No. 23. (Desh. ed. tert.) - -	1844.
—————	Sowb. Thes. Conch. p. 445. No. 20.	
	pl. 92. f. 13. pl. 95. f. 67.	1848.

*Station*.—Sandy mud in 7 fathoms water; Cuming! Sowerby.

*Habitat*.—Panama and Payta; Cuming! Sowerby: also Müller.

Bay of Panama and shore of Payta; Kiener.

Panama and Payta; Deshayes.

Panama; Jay.

Panama; C. B. A.!

8 specimens were collected.

### 156. *Cancellaria decussata*.

#### *Synonymy*.

<i>Cancellaria decussata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 55. Mar. 1832.	
—————	Müll. Synop. Nov. Test. Viv. p. 787.	1836.
—————	Sowb. Conch. Ill. No. 8. pl. 9. f. 8.	1841.
—————	Sowb. Thes. Conch. p. 446. No. 24.	
	pl. 92. f. 3. - - - -	1848.

*Station*.—Sandy mud, in 10 to 13 fathoms water; Cuming! Sowerby.

*Habitat*.—Panama and Puerto Portrero; Cuming! Sowerby.

Panama; Jay.

Panama.—C. B. A.!

2 specimens were obtained.

### 157. *Cancellaria goniostoma*.

#### *Synonymy*.

<i>Cancellaria goniostoma</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 51. - - - -	Mar. 1832.
—————	Müll. Syn. Nov. Test. Viv. p. 73.	1836.
—————	Sowb. Conch. Ill. No. 47. pl. 13. f. 43.	1841.
—————	Sowb. Thes. Conch. p. 457. No. 64.	
	pl. 94. f. 40. - - - -	1848.

*Station*.—A sandy bottom, in 8 fathoms water; Cuming! Sowerby.

*Habitat*.—Conchagua, San Salvador; Cuming! Sowerby:  
also Müller.

Central America; Jay.

Mazatlan; Melchers! Menke.

Mazatlan; Lt. Green! Gould MSS.

Lower California; Major Rich! Gould MSS.

Taboga; C. B. A.!

We found 1 specimen.

### 158. *Cancellaria mitriformis*.

#### *Synonymy.*

<i>Cancellaria mitriformis</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 51. - - - - -	Mar. 1832.
———— <i>uniplicata</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 173. - - - - -	Oct. 1832.
———— ————	Müll. Syn. Nov. Test. Viv. p. 79.	1836.
———— <i>mitriformis</i>	Müll. Syn. Nov. Test. Nov. p. 73.	1836.
———— <i>uniplicata</i>	Sowb. Conch. Ill. No. 12. pl. 10. f. 13.	1841.
———— <i>mitriformis</i>	Sowb. Conch. Ill. No. 13. pl. 10. f. 14.	1841.
———— <i>uniplicata</i>	Reeve Conch. Syst. pl. 230. f. 13.	1842.
———— <i>mitriformis</i>	Reeve Conch. Syst. pl. 230. f. 14.	1842.
———— ————	Kiener Iconog. p. 27. pl. 9. f. 3.	
———— ————	Sowb. Thes. Conch. p. 445. No. 19.	
	pl. 93. f. 24, 35. - - - - -	1848.

*Station*.—One specimen of *C. m.* was dredged in sandy mud; Cuming! Sowerby. Two specimens of *C. u.* were dredged in sand at a depth of 10 fathoms; Cuming! Sowerby.

*Habitat*.—Panama; Cuming! Sowerby: also Müller.

Panama; Kiener: also Jay.

Panama; C. B. A.!

Two young and 3 mature specimens were obtained. Two of the latter of a deep blackish brown, like var. *uniplicata*.

### 159. *Cancellaria pulchra*.

#### *Synonymy.*

*Cancellaria pulchra* Sowb. in Proc. Zool. Soc. Lond. p. 50. Mar. 1832.

<i>Cancellaria pulchra</i>	Müll. Synop. Nov. Test. Viv. p. 72.	1836.
—————	Sowb. Conch. Ill. No. 39. pl. 13. f. 37.	1841.
—————	Sowb. Thes. Conch. p. 451. No. 42.	
	pl. 94. f. 41. - - - -	1848.

*Station*.—Sandy bottom in 8 to 10 fathoms water; Cuming! Sowerby.

*Habitat*.—St. Elena; Cuming! Sowerby: also Müller.  
Taboga; C. B. A.!

Two specimens were obtained.

160. ***Cancellaria pygmæa***. Nov. sp.

Shell subovate, short; pale wax color, with minute dark brown dots on the ribs, and dark brown irregular rays on the upper part of the last whorl; with slender prominent ribs, which are only nine in number on the last whorl, but are crowded and numerous on the spire, and which are much developed at the angle of the whorls; with several fine raised spiral lines, which are stouter on the summits of the ribs, and crowded intermediate microscopic striæ: apex subacute: spire with the outlines rectilinear: whorls five, acutely shouldered, with a broad concave area above, moderately convex below the angle, with a well impressed suture: aperture triangular, effuse below: labrum thickened by the last rib; labium thin, elevated: columella with two lamelliform slightly oblique plaits; umbilicus narrow, deep, bounded by an acute angle in the last whorl.

Mean divergence, about 100°; length .33 inch; breadth .25 inch; length of spire .15 inch.

This species is allied to *C. contabulata* Sowb., and *C. bicolor* Hinds.

*Station*.—Unknown.

*Habitat*.—Taboga; C. B. A.!  
One specimen was found.

161. *Cancellaria solida*.*Synonymy.*

<i>Cancellaria solida</i>	Sowb. in Proc. Zool. Soc. Lond. p. 52.	Mar. 1832.
—————	Müll. Synop. Nov. Test. Viv. p. 72.	1836.
—————	Sowb. Conch. Ill. No. 6. pl. 9. f. 6.	1841.
—————	Thea. Conch. p. 440. No. 5. pl. 92. f. 4.	1848.

*Station*.—Eight to ten fathoms, sandy bottom; Cuming! Sowerby.

*Habitat*.—Real Llejos and St. Elena; Cuming! Sowerby: also Müller.

Real Llejos; Jay.

Panama; C. B. A.!

One specimen was found.

162. *Cancellaria tessellata*.*Synonymy.*

<i>Cancellaria tessellata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 51.	Mar. 1832.
—————	Müll. Synop. Nov. Test. Viv. p. 74.	1836.
—————	Sowb. Conch. Illust. No. 21. pl. 11. f. 20.	1841.
—————	Kiener Iconog. p. 32. pl. 9. f. 4.	
—————	Sowb. Thea. Conch. p. 447. No. 29. pl. 93.	
	f. 32. - - - - -	1848.

*Station*.—Sandy, muddy bottom, in from 7 to 10 fathoms; Cuming! Sowerby.

*Habitat*.—Bay of Caraccas, St. Elena, and Xipixapi; Cuming! Sowerby: also Müller.

"South Sea; Bay of Caraccas, and St. Elena;" Kiener.

Bay of Caraccas; Jay.

Taboga; C. B. A.!

Two specimens were obtained.

**PLEUROTOMA.** Like *Columbella*, this genus was found to be represented by numerous species; but unlike that genus,

the species were represented by few individuals, at least so far as they could be found without a dredge. A similar abundance of species and scarcity of specimens in this genus occurs in the Caribbean seas. One large species was found; of the others, nearly one half are as small as the Caribbean species: the rest are nearer to an average size as compared with the species which have been described by European authors. Most of the small species are undescribed. If we may judge from the collections made by us in Panama and in Jamaica, and received from Ceylon, it may be conjectured that the undescribed species in this genus are as numerous as those which have been described. We do not refer to Kiener's monograph, which contains 60 species: for, including the allied genus *Mangelia*, nearly 500 species have been described. Probably this is not more than half of the number actually existing.

### 163. *Pleurotoma aterrima*.

#### *Synonymy.*

*Pleurotoma aterrima* Sowb. in Proc. Zool. Soc. Lond.

	p. 137.	- - - - -	Dec. 1833.
_____	_____	Müll. Synop. Nov. Test. Viv. p. 113.	May 1836.
_____	_____	Reeve Conch. Icon. pl. 12. f. 100.	May 1843.

*Station*.—Under stones; Cuming! Reeve.

Our living specimens were found in the same situation at low water mark.

*Habitat*.—Monte Christi; Cuming! Sowerby: also Reeve.

West Columbia; Jay.

Panama; C. B. A.!

We collected 14 specimens, most of which were occupied by hermit crabs.

### 164. *Pleurotoma atrior*. Nov. sp.

Shell subfusiform: jet black, with a paler translucent spiral stripe below the middle of the whorls: with a spiral series of



granules next above the suture, and a not very prominent keel above the middle of the whorls; on the last whorl three other keels appear, which are more or less granulated: apex very acute: spire with convex outlines: whorls eleven, angular under the spiral keel, beneath it concave, with an indistinct suture: aperture long, with a rather deep sinus: canal very short, wide. This species has some resemblance to *P. discors*. It must also resemble *P. Melchersi* Menke, Zeitschr. 1851. p. 20.

Mean divergence about  $38^{\circ}$ ; length .8 inch; breadth .28 inch; length of spire .5 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

Only 1 specimen was obtained.

#### 165. *Pleurotoma bicanalifera*.

##### *Synonymy*.

<i>Pleurotoma bicanalifera</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 136. - - - - -	Dec. 1833.
_____	Müll. Synop. Nov. Test. Viv. p.	
	112. - - - - -	May 1836.
_____	Reeve Conch. Icon. pl. 12. f. 103.	May 1843.

*Station*.—Sandy mud at a depth of 10 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—Shores of Central America; Cuming! Sowerby: also Müller.

Bay of Montija; Cuming! Reeve.

Taboga; C. B. A.!

We found only 1 specimen.

#### 166. *Pleurotoma collaris*.

##### *Synonymy*.

<i>Pleurotoma collaris</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 139. - - - - -	Dec. 1833.

<i>Pleurotoma collaris</i>	Müll. Synop. Nov. Test. Viv. p. 117.	May 1836.
—————	Reeve Conch. Icon. pl. 15. f. 120.	July 1843.

*Station*.—Muddy sand at the depth of 8 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—Bay of Caraccas; Cuming! Sowerby: also Reeve.  
West Columbia; Jay.

Panama; C. B. A.!

4 specimens were collected.

167. ***Pleurotoma concinna*.** Nov. sp.

Shell fusiform: white, tinged more or less with reddish brown: with numerous crowded small ribs, which become obsolete near the labrum, and crowded spiral striæ, which are finer on the spire: apex acute: spire with moderately convex outlines: whorls eight, angular along the middle, with a moderately impressed suture: aperture very long and narrow: labrum very much thickened a little behind the edge, with the sinus deep and very near the suture: canal scarcely distinct from the aperture. It resembles *P. triticea* Kiener, and may be a *Mangelia*.

Mean divergence about  $48^{\circ}$ ; length .42 inch; breadth .17 inch; length of spire .18 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!—1 specimen was obtained.

168. ***Pleurotoma corrugata*.**

*Synonymy.*

<i>Pleurotoma corrugata</i>	Sowb. (non Kiener) in Proc. Zool.	
	Soc. Lond. p. 137. - - -	Dec. 1833.
————— <i>turricula</i>	Sowb. (non Macgillivray) in Proc.	
	Zool. Soc. Lond. p. 137. - - -	Dec. 1833.
————— <i>corrugata</i>	} Müll. Synop. Nov. Test. Viv. p. 114.	May 1836.
————— <i>turricula</i>		

<i>Pleurotoma turricula</i>	Reeve Conch. Syst. pl. 233. f. 6.	1842.
—————	Reeve Conch. Icon. pl. 6. f. 49. (non pl. 19. f. 162.)	- - Feb. 1843.
————— <i>Sowerbyi</i>	Reeve Conch. Icon. in "Errata"	
	Pleurot. - - - -	Apr. 1846.

*Station.*—Sandy mud at 10 fathoms depth; Cuming! Sowerby.

*Habitat.*—Bay of Montija, and Puerto Portrero; Cuming! Sowerby: Müller.

Taboga; C. B. A.!

3 specimens were obtained.

### 169. *Pleurotoma discors.*

#### *Synonymy.*

<i>Pleurotoma discors</i>	Sowb. in Proc. Zool. Soc. Lond. p. 137.	Dec. 1833.
—————	Müll. Synop. Nov. Test. Viv. p. 113.	May 1836.
—————	Reeve Conch. Syst. pl. 235. f. 14.*	1842.
—————	Reeve Conch. Icon. pl. 6. f. 38.	Feb. 1843.

*Station.*—Coral sand at the depth of 17 fathoms; Cuming! Sowerby: also Reeve.

*Habitat.*—I. of Plata; Cuming! Sowerby: also Reeve.

West Columbia; Jay.

Panama; C. B. A.!

We were indebted to the hermit crabs for 5 specimens.

### 170. *Pleurotoma duplicata.*

#### *Synonymy.*

<i>Pleurotoma duplicata</i>	Sowb. in Proc. Zool. Soc. Lond.	
—————	p. 138. . . . .	Dec. 1833.
—————	Reeve. Conch. Icon. pl. 9. f. 78.	Apr. 1843.

*Station.*—A sandy muddy floor at 10 fathoms depth; Cuming! Sowerby: also Reeve.

\* The citation in the Conch. Icon. of fig. 10. in pl. 234 of Conch. Syst. is evidently a misprint for fig. 14.

*Habitat*.—Puerto Portrero and Bay of Montija in Central America; Cuming! Sowerby: also Reeve.  
Panama; C. B. A.!

1 specimen was obtained: it is of a blackish brown color, but otherwise is indistinguishable from a specimen received from Mr. Cuming. It is smaller and more slender and finely sculptured than Mr. Reeve's figure.

### 171. *Pleurotoma excentrica*!

#### *Synonymy.*

*Pleurotoma excentrica* Sowb. in Proc. Zool. Soc. Lond.  
p. 138. - - - - - Dec. 1833.  
Müll. Synop. Nov. Test. Viv. p. 115. May 1836.  
Reeve Conch. Icon. pl. 7. f. 58. Mar. 1843.

*Station*.—Coral sand at the depth of 6 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—Gallapago Is.; Cuming! Sowerby: also Reeve.  
Panama; C. B. A.!

We found 1 specimen, which probably belongs to this species. It is a little longer than the figure in the Conch. Icon., and is distorted only in the last whorl: spiral lines cross the ribs only anteriorly.

### 172. *Pleurotoma exigua*. Nov. sp.

Shell slender: pale cream color, with very fine brown spiral lines, of which the two or three upper ones are single, and the rest are in pairs: with distant obtuse transverse ridges, about six or seven on each whorl, obsolete on the anterior half of the last whorl: apex acute: spire with the outlines moderately convex: whorls six, convex, with a distinct suture: aperture narrow: labrum thickened by the last ridge a little behind the edge, with a deep sinus near the suture: canal very short.

Mean divergence about  $84^{\circ}$ ; length .175 inch; breadth .08 inch; length of spire .1 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen of this elegant little shell was obtained in the calcareous sand on the shore.

173. **Pleurotoma gemmulosa.** Nov. sp.

Shell long, subfusiform: brown, with some pale spots: surface densely covered with small transverse and spiral ridges, with the intersections developed into elegantly rounded prominent nodules, except near the end of the last whorl, where the transverse ridges are obsolete: apex acute: spire with the outlines very curvilinear: whorls eight, a little convex, with a moderately impressed suture: aperture very narrow, with a small sinus near the suture: labrum thickened without and within: canal very short.

Mean divergence about  $33^{\circ}$ ; length .22 inch; breadth .08 inch; length of spire .14 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found.

174. **Pleurotoma grandimaculata.** Nov. sp.

Shell long, ovate pyramidal: black, with a single spiral series of very large dingy white spots: with excessively minute incremental and spiral striæ, the latter of which are obsolete anteriorly; with a sharp simple spiral keel a little below the suture; a little below the middle of the whorls is a sharp tuberculated keel, which is less developed between the tubercles; these tubercles coincide with the white spots, and on the last whorl are transversely elongated; on the last whorl four or five more spiral linear keels are seen: apex acute: spire conic: whorls ten, concave between the keels, with the suture indistinct; aperture rather narrow; labrum moderately thickened, with the sinus rather deep: labium well developed: canal very short.

Mean divergence about  $38^{\circ}$ ; length .95 inch; breadth .35 inch; length of spire .62 inch.

Having received from Mr. Cuming specimens of this species labelled *P. zonulata*, we infer that it has been confounded with that species in collections. Mr. Cuming's specimens are said in the MS. catalogue to have come from the Philippine Is., but as their specific identity with our species is unquestionable, it is probable that the catalogue is erroneous.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

We obtained 1 fresh and 1 faded specimen.

### 175. *Pleurotoma incrassata*.

#### *Synonymy*.

<i>Pleurotoma incrassata</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 138.	Dec. 1833.
—————	Müll. Synop. Nov. Test. Viv. p. 115.	May 1836.
————— <i>Botta</i>	Kiener Iconog. p. 33. pl. 15. f. 2.	
————— <i>incrassata</i>	Reeve Conch. Icon. pl. 9. f. 76.	Apr. 1843.

*Station*.—Sandy mud at the depth of 6 to 10 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—Panama, and Monte Christi; Cuming! Sowerby.

Mazatlan; Botta! (?) Kiener.

Bay of Panama, &c.; Cuming! Reeve.

Mazatlan; Melchers! Menke.

Panama; C. B. A.!

1 specimen was obtained.

### 176. *Pleurotoma nigerrima*.

#### *Synonymy*.

<i>Pleurotoma nigerrima</i>	Sowb. in Proc. Zool. Soc. Lond.	
	p. 137.	Dec. 1833.



Panama, Gulf of Nicoya, and western coast of Mexico; Hinds! Reeve.

Panama; Jay.

Panama; C. B. A.!

8 specimens were obtained.

### 179. *Pleurotoma pallida*.

#### *Synonymy.*

<i>Pleurotoma pallida</i>	Sowb. in Proc. Zool. Soc. Lond. p. 137.	Dec. 1833.
—————	——— Müll. Synop. Nov. Test. Viv. p. 113.	May 1836.
—————	——— Reeve Conch. Icon. pl. 16. f. 134.	Aug. 1843.

*Station*.—A sandy muddy floor at the depth of 13 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—Puerto Portrero; Cuming! Sowerby: also Reeve: also Müller.

Panama; C. B. A.!

12 specimens in various stages of growth were obtained.

### 180. *Pleurotoma rigida*.

#### *Synonymy.*

<i>Clavatula rigida</i>	Hinds in Proc. Zool. Soc. Lond. p. 45.	Mar. 1843.
—————	——— Hinds in Voy. Sulph. Moll. pl. 7. f. 18.	1844.
<i>Pleurotoma</i>	——— Reeve Conch. Icon. pl. 25. f. 216.	Oct. 1845.

*Station*.—Unknown.

*Habitat*.—Panama; Hinds! quoted by Reeve.

Panama; C. B. A.!

We collected 20 specimens of this species in some calcareous sand near the sea wall of Panama.

### 181. *Pleurotoma rudis*.

#### *Synonymy.*

<i>Pleurotoma rudis</i>	Sowb. in Proc. Zool. Soc. Lond. p. 134.	Dec. 1833.
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- Pleurotoma rudis* Müll. Synop. Nov. Test. Viv. p. 109. May 1836.  
 ———— ———— Reeve Conch. Icon. pl. 7. f. 53. Mar. 1843.

*Station.*—Under stones; Cuming! Sowerby: also Reeve: also Müller.

*Habitat.*—Monte Christi; Cuming! Sowerby; also Reeve: also Müller.

Monte Christi; Jay.

Panama; C. B. A.!

2 specimens were obtained.

## 182. *Pleurotoma rustica*.

### *Synonymy.*

- Pleurotoma rustica* Sowb. in Proc. Zool. Soc. Lond. p. 138. Dec. 1833.  
 ———— ———— Müll. Synop. Nov. Test. Viv. p. 116. May 1836.  
 ———— *thiarella* Kiener Iconog. p. 56. pl. 23. f. 2. ?  
 ———— *rustica* Reeve Conch. Icon. pl. 11. f. 91. May 1843.

Mr. Reeve's reference to Proc. Z. S. 1843, is a misprint for 1833.

*Station.*—Under stones; Cuming! Sowerby: also Reeve: also Müller. We found it under stones near low water mark.

*Habitat.*—Xipixapi; Cuming! Sowerby: also Reeve: also Müller.

West Columbia; Jay.

Panama; C. B. A.!

10 specimens were collected, most of them more strongly striated spirally on the last whorl than is represented in the Conch. Icon.

## 183. *Pleurotoma striosa*. Nov. sp.

Shell slender: dingy white, with a more or less distinct brown spiral stripe on the last whorl issuing from the upper part of the aperture: with indistinct crowded spiral striæ, with ten or twelve very slender ribs on each whorl: apex acute:

spire with the outlines nearly rectilinear: whorls eight, convex, with a moderately impressed suture: aperture rather narrow: labrum rather sharp, thickened behind the edge by a very stout rib: canal rather wide, very short.

Mean divergence about  $33^{\circ}$ ; length .3 inch; breadth .1 inch; length of spire .2 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

13 specimens were found in the calcareous sand on the shore.

#### 184. **Pleurotoma zonulata.**

##### *Synonymy.*

<i>Pleurotoma cincta</i>	Sowb. (non Lam.) in Proc. Zool. Soc.	
	Lond. p. 136.	Dec. 1833.
——— <i>zonulata</i>	Reeve Conch. Syst. pl. 234. f. 10.	1842.
——— . ———	Reeve Conch. Icon. pl. 8. f. 39.	Feb. 1843.

The name given by Mr. Sowerby was pre-occupied by Lamarck.

*Station*.—Sand and gravel at a depth of 7 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—Monte Christi and Xipixapi; Cuming! Sowerby: also Reeve.

Panama; C. B. A.!

Two specimens were obtained.

Of each of the following species we obtained but one specimen in a more or less imperfect condition. They were found near Panama, mostly in the calcareous sand.

185. **Pleurotoma** ——— a.

186. **Pleurotoma** ——— b.

187. **Mangelia** ——— c.

188. *Mangelia* ——— *d.*

189. *Mangelia* ——— *e.*

190. *Mangelia* ——— *f.*

191. *Mangelia neglecta.* Nov. sp.

Shell subfusiform : pale brownish red : with, on each whorl, eight or nine prominent curved ribs, and an elevated spiral line on the middle of the whorls, which becomes obsolete on the last whorl; anteriorly with several spiral striæ: apex acute: spire with the outlines moderately convex: whorls seven, rather convex, with a distinct suture: aperture rather narrow, mostly parallel with the axis of the spire: labrum much thickened within and without, with a narrow sinus: canal very short.

Mean divergence about  $40^{\circ}$ ; length .2 inch; breadth .07 inch; length of spire .11 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

We obtained 2 specimens from the calcareous sand at Panama; also other 2, of a more slender variety.

This is one of the many species whose claim to a place in the genus *Mangelia* will not be universally conceded.

192. *Mangelia sulcosa*?

*Synonymy.*

! *Columbella sulcosa* Sowb. in Proc. Zool. Soc. Lond. p. 118. June 1832.

! ————— Ducl. in Chenu Ill. Conch. pl. 21. f. 5. 6.

! ————— Sowb. Thea. Conch. p. 141. pl. 40. f. 165.

The color of our specimens is a very deep green between the cream-colored ribs, and brownish towards the apex, which is nearly colorless. The “*infra canali distincto*” and “*interno*”

[labio] rugis basilibus nonnullis" Sowb., the well defined sinus of the lip, and the sharp continuous ribs, present a group of characters more characteristic of a *Mangelia*. We are not, however, perfectly satisfied of the specific identity of our shell with Mr. Sowerby's.

*Station*.—We found our specimens under stones at and below the low water mark of neap tides.

*Habitat*.—Annaa and Lord Hood's Is-  
land; Cuming! Sowerby. } *Columbella sulcosa*.  
Lord Hood's Island; Jay. }  
Taboga and Panama; C. B. A.!

170 specimens were collected.

### 193. *Cerithium adustum*.

#### *Synonymy*.

<i>Cerithium adustum</i>	Kiener Iconog. p. 37. pl. 13. f. 2 non 3.
—————	Lam. An. sans Vert. IX. 313. No. 46.
—————	(Desh. ed.) - - - - - 1843.
—————	Lam. An. sans Vert. III. Pt. 2. p. 611.
—————	No. 46. (Desh. ed. tert.) - - - - - 1844.

There is evidently a transposition, as noticed by Deshayes, Jay, and Menke, in Kiener's references to and names on the plate of his figures of this species and of *C. maculosum*.

*Station*.—In wet sand, under stones, at half tide level.

*Habitat*.—Indian Ocean, Red Sea; Kiener.

Indian Ocean, according to Kiener; Deshayes.

Red Sea; Jay.

Taboga; C. B. A.!

206 specimens were collected. The doubt which Deshayes implies of the accuracy of Kiener's statement of habitat, must be well founded.

### 194. *Cerithium assimilatatum*. Nov. sp.

Shell very long, conic: very dark brownish red, with some

irregular linear spots of white on the spiral keels: with three excessively prominent compressed acute nearly equal and equidistant spiral keels, with narrow deep interspaces, which are crossed by microscopic raised lines, with a fourth keel on the periphery of the last whorl, and another anteriorly which is more minute: apex acute: spire with the outlines nearly rectilinear: whorls sixteen to eighteen, planulate, with the suture very indistinct: last whorl very short: aperture ovate: labrum deeply scalloped by the spiral ridges: canal large, very short.

Mean divergence about  $18^{\circ}$ ; length .23 inch; breadth .06 inch; length of spire .19 inch.

This species is allied to *C. trilineatum* Phil. and to *C. terebthalm* Ad.

*Station*.—Under stones, sponges, and marine plants, &c., near low water mark.

*Habitat*.—Panama; C. B. A.!

Eight specimens were collected.

195. ***Cerithium bimarginatum***. Nov. sp.

Shell long, conic: wax color, dark brown on the upper whorls: with a spiral ridge at each margin of the whorls of the spire and an intermediate raised line; on each whorl with about eighteen transverse small ridges with intersections strongly nodulous; with a simple spiral ridge at the periphery of the last whorl; anteriorly without sculpture: apex very acute: spire with the outlines rectilinear: whorls thirteen, concave, with a well impressed suture; last whorl very short, concave anteriorly, with the periphery angular: aperture subquadrate: columella with a very prominent spiral fold: canal rather short, recurved.

Mean divergence about  $20^{\circ}$ ; length .175 inch; breadth .055 inch; length of spire .14 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found.

196. ***Cerithium famelicum***. Nov. sp.

Shell long, ovate conic: dingy white, more or less profusely mottled with irregular brown spots, which are divided by fine white spiral lines; or nearly covered with fine alternating white and brown lines: with a narrow spiral ridge on the middle of the whorls, crossing transverse obtuse ridges, with very prominent acute intersections; with the upper margin of the whorls more or less granulous; anteriorly with two more granulous spiral ridges; surface covered with fine spiral striæ: apex acute: spire with the outlines slightly curvilinear: whorls twelve, moderately convex, with the suture lightly impressed; last whorl short, gibbous on the left, with an anterior concave area: aperture large, obliquely elliptical: labrum advanced in the lower half: labium with a moderately thick deposit and a stout transverse plait above: canal short, oblique.

Mean divergence about  $33^{\circ}$ ; length 1.13 inch; breadth .5 inch; length of spire .75 inch.

In color and sculpture only, this shell has some resemblance to *C. maculosum* Kr. (*C. adustum* of Kr.'s plate.)

*Station*.—Unknown.

*Habitat*.—Taboga; C. B. A.!

17 specimens were collected.

197. ***Cerithium gemmatum***.

*Synonymy*.

*Cerithium gemmatum* Hinds Voy. Sulph. Moll. pl. 11. f. 5. 6. 1844.

*Station*.—Sandy mud, in from 2 or 3 to 7 fathoms or upwards; Hinds!

*Habitat*.—Panama; Hinds!

Taboga; C. B. A.!

19 specimens were collected.

198. **Cerithium interruptum?**

*Synonymy.*

† *Cerithium interruptum* Menke. Zeitsch. Mal. p. 178. for

1850. - - - - Apr. 1851.

Our specimens are, for the most part, much larger than those which Dr. Menke describes. In other respects, they answer to his description as nearly as could be expected in a species with variable characters. Menke's shell is 5.4 lines long, and many of our specimens are 1 inch long.

*Station*.—On and under rocks and stones, between half tide level and the low water mark of neap tides.

*Habitat*.—Mazatlan; Melchers! Menke.

Taboga and Panama; C. B. A.!

1100 specimens were collected.

199. **Cerithium** ———. Sp. indet.

This shell is so nearly related to the preceding that it may be a question whether it should rank as a distinct species. It is larger, being 1.2 inch long; and is wholly black, except the eroded apex: it has one series of sharp tubercles, and the spiral granular lines are more prominent and more nearly equal than in *C. interruptum*.

*Station*.—Like that of *C. interruptum*.

*Habitat*.—Taboga; C. B. A.!

Thirty specimens were collected.

200. **Cerithium irroratum.***Synonymy.**Cerithium irroratum* Gould in Proc. Bost. Soc. Nat. Hist.

III, 119.

Feb. 1849.

————— Gould Exped. Shells. p. 61.

Feb. 1849.

This species closely resembles *C. ocellatum* Brug., but Dr. Gould informs me that it is his *C. irroratum*.

*Station.*—At and above half tide level; mostly in the margin of water left on the rocks by the tide.

*Habitat.*—Unknown; Gould, in Exped. Shells.

Mazatlan; Lt. Green! Gould MSS.

Panama and Taboga; C. B. A.!

Eight hundred and twenty specimens were collected.

201. **Cerithium neglectum.** Nov. sp.

Shell long, ovate conic: blackish red, with the apex white: with three prominent spiral ridges on each whorl, of which the upper two are less distant; with prominent transverse ridges, sixteen or eighteen on the last whorl, where they are less robust than on the spire, and which become obsolete on the periphery of the last whorl; with the intersections developed into very prominent elegantly rounded nodules; anteriorly with two additional subgranulous spiral ridges; apex acute: spire with curvilinear outlines: whorls ten, moderately convex, with the suture indistinct; last whorl rather short: aperture obliquely subovate: labrum a little modified by the spiral ridges: canal deep, very short.

Mean divergence about 20°; length .125 inch; breadth .04 inch; length of spire .09 inch.

*Station.*—Under stones, in old shells, in dead sponges, &c., near low water mark.



*Habitat*.—Panama; C. B. A.!

33 specimens were collected.

## 202. *Cerithium Pacificum*.

### *Synonymy*.

<i>Cerithium Pacificum</i>	Sowb. Genera. No. 42. f. 9.	1824.
————	<i>Humboldtii</i> Valenc. in Humb. Rec. Obs. II. 280.	1833.
————	———— Kiener Iconog. p. 83. pl. 26. f. 2.	
————	<i>Pacificum</i> Reeve Conch. Syst. pl. 236. f. 9.	1842.

Kiener ascribes priority to the description by Valenciennes in Humb. Rec. Obs. The second volume of Humboldt's work, in which the Mollusca are described, bears the date 1833. ;

*Station*.—Unknown.

*Habitat*.—Cumana; Humboldt & Bonpland! Valenciennes.

Cumana; Kiener.

Panama; Jay.

Panama; C. B. A.!

1 specimen only was found.

## 203. *Cerithium pauperculum*. Nov. sp.

Shell slender: pale horn color: with several spiral keels, of which five are visible on the spire, with many transverse ridges on the upper whorls, which are reduced to raised lines on the lower whorls, with the intersections slightly granulous; anteriorly the spiral ridges are obsolete: apex acute: spire with the outlines nearly rectilinear: whorls eight, slightly convex, with a moderately impressed suture; last whorl rather long: aperture long, acute above, with a small umbilical chink: canal very short.

Mean divergence about 18°; length .13 inch; breadth .04 inch; length of spire .09 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found.

204. ***Cerithium pulchrum***. Nov. sp.

Shell rather long, subconic: very dark brownish red, with a yellowish white spiral line on the middle of the whorls: with about forty slender acute ribs on each whorl, which terminate abruptly on the periphery of the last whorl; with very stout varices  $240^{\circ}$  distant; with a narrow acute spiral keel, above the middle of the whorls, traversing the ribs and varices: with a few raised spiral lines and many minute spiral striæ, which do not traverse the ribs; anteriorly with crowded coarse spiral striæ: apex acute: spire with the outlines moderately curvilinear: whorls eleven, convex, with a deep suture; last whorl short: aperture large, quadrate-orbicular, broadly effuse above, with a very narrow sinus in place of the canal; labrum and labium continuous, very thick and highly polished.

Mean divergence about  $83^{\circ}$ ; length 1.25 inch; breadth .65 inch; length of spire .82 inch.

This species must closely resemble *C. Montagnei* Orb. But in Kiener's figure and description, Orbigny's species appears to be destitute of varices. Menke, however, in his specimen of *C. Montagnei* from Mazatlan, finds 48 ribs on the last whorl, but mentions no varices.

*Station*.—Half buried in muddy sand under bushes at high water mark.

*Habitat*.—Panama; C. B. A.!

125 specimens were collected, near the mangrove thicket, 2½ miles east of Panama.

205. ***Cerithium Reevianum***. Nov. sp.

Shell rather long, subconic: dark reddish brown, with a yellowish white spiral line on the middle of the whorls, which is darker between the ribs; with a similar spiral line anteriorly, and another tipping the upper ends of the ribs on the lower whorls: without varices: on each whorl with about twenty-four prominent subacute, not approximate, ribs, which are less

regular and prominent on the last whorl, on the periphery of which they become obsolete; anteriorly with spiral raised lines, of which one near the periphery is larger: apex acute: spire with the outlines moderately curvilinear: whorls fifteen, convex, with a well impressed suture: aperture large, quadrate-orbicular, broadly effuse above, with a narrow sinus in place of the canal: labrum and labium thick, not continuous; labium reflected below.

It resembles Orbigny's figure (not Kiener's) of *C. Montagnei*; Orbigny's description is too meagre to enable us to identify our species with it, and the figure represents it with flattened approximate ribs, and with several spiral white bands, most of which are wanting on our shell.

Mean divergence about  $28^{\circ}$ ; length 1.55 inch; breadth .66 inch; length of spire 1.04 inch.

*Station*.—With *C. pulchrum*, q. v.

*Habitat*.—Panama; C. B. A.!

190 specimens were collected with *C. pulchrum*.

206. **Cerithium validum.** Nov. sp.

Shell long, conic: dark reddish brown, with a pale spiral line along the middle of the whorls: rufous on the varices, and white in the aperture: sometimes whitish on the varices, the spiral ridges, and the last whorl: with, on each whorl, about twenty arcuate ridges, which are prominent and rather narrow but not compressed, and which terminate abruptly at the periphery of the last whorl: with stout varices about  $270^{\circ}$  distant: with six spiral ridges, of which two next below the suture are small and approximate, and are sometimes replaced by a single ridge: and of which one is partly concealed in the suture: with intermediate minute spiral striæ: anteriorly covered with slightly wrinkled spiral ridges: apex acute: spire with the outlines moderately curvilinear: whorls twelve, convex, with a deep suture: last whorl subangular at the periphery, very short: aperture

sub-quadrate, effuse below, sub-effuse above: labrum produced very far in the lower half, in old shells excessively thickened.

Mean divergence about  $32^{\circ}$ : length, 1.6 inch; breadth, .75 inch; length of spire 1.15 inch.

This species must closely resemble *C. varicosum* Sowb., and *C. varicosum* Kiener, which are probably distinct from each other. *C. Hedgeswichii* Phil. is also similar to our shell. (It is to be regretted that Dr. Philippi has not stated which side of Mexico his species inhabits.) Sowerby's shell may be ours. It appears like a dwarfed variety. Orbigny considers it as the young of the shell which he had from Guayaquil, but speaks of a circular umbilicus.

*Station*.—With *C. pulchrum*.

*Habitat*.—Panama; E. Jewett! Gould MSS.

Panama; C. B. A.!

250 specimens were collected with *C. pulchrum*.

207. ***Triphoris alternatus***. Nov. sp.

Shell long, conic, sinistrorsal: blackish red except that in the lower whorls a dingy white spiral stripe occupies the lower two-thirds of each whorl: with two stout marginal spiral ridges, and a rather smaller intermediate one, which is wanting on the upper whorls; with about twenty-five transverse moderately developed ridges, which terminate at the periphery of the last whorl, with the intersections strongly nodulous; anteriorly with two additional spiral ridges: apex very acute: spire with the outlines slightly curvilinear: whorls twelve, nearly flat, with an indistinct suture; last whorl short, concave anteriorly: aperture rhombic: canal rather deep, short.

Mean divergence about  $30^{\circ}$ ; length .2 inch; breadth .06 inch; length of spire .155 inch.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

3 mature and 2 young shells were found.

208. ***Triphoris inconspicuus***. Nov. sp.

Shell long, ovate fusiform, sinistrorsal: blackish red, fading into a cinereous color: with three spiral equidistant strongly nodulous ridges on each whorl, of which the intermediate one is wanting on the upper whorls, and three or four additional scarcely nodulous ridges anteriorly; with about twenty or twenty-two transverse less prominent ridges on each whorl: apex very acute: spire with curvilinear outlines: whorls twelve, moderately convex, with the suture indistinct; last whorl with the periphery subangular: aperture subrhombic, with a sinus above: labrum much advanced: canal deep, short.

Mean divergence about  $22^{\circ}$ ; length .165 inch; breadth .055 inch; length of spire .13 inch.

*Station*.—Under stones near low water mark.

*Habitat*.—Taboga and Panama; C. B. A. !

16 specimens were collected.

209. ***Triphoris infrequens***. Nov. sp.

Shell long, conic: blackish red: with three excessively prominent much compressed spiral ridges on the spire, and another on the periphery of the last whorl; with about sixteen or eighteen less prominent transverse ridges on each whorl; anteriorly without sculpture: apex acute: spire with the outlines nearly rectilinear: whorls thirteen, nearly flat, with the suture indistinct; last whorl very short: aperture subquadrate: labrum scalloped by the spiral ridges: canal rather wide, very short.

Mean divergence about  $20^{\circ}$ ; length .13 inch; breadth .045 inch; length of spire .105 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A. !

2 specimens were found.

## Family—LITTORINIDÆ.

210. **Turritella Banksii.***Synonymy.**Turritella Banksii* Reeve Conch. Icon. pl. 4. f. 15.

May 1849.

*Station.*—Sandy mud at the depth of 10 fathoms; Cuming! Reeve.

Between the low water mark of the neap tides and that of the spring tides, this species was found living in the calcareous sand among and under stones.

*Habitat.*—Panama; Cuming! Reeve.

Panama; C. B. A.!

On the reef we collected about 350 specimens, one-third of which were taken alive.

This species is remarkable for the diversity of color in different individuals. Some are nearly black and are but slightly variegated; others are mostly white, mottled with a few irregular blackish spots; many are ornamented with a profusion of irregular greyish and blackish spots on a light ground; and a few are brown. Not less than 20 individuals would be required to exhibit fairly this diversity of coloring.

**CÆCUM.**—A European type of this extraordinary genus has long been known under the name of *Dentalium trachea*. In 1849, Mr. Clark of Exmouth, England, described the soft parts in the Ann. and Mag. of Nat. Hist. Mr. C. considered the animal to be kindred to Rissoa. In the Proc. Bost. Soc. Nat. Hist. Oct. 15, 1851, Mr. William Stimpson has described three American species, of which one inhabits Massachusetts, and two inhabit Florida. For some time we have possessed several undescribed species which we collected in Jamaica. Now we offer descriptions of eight species from Panama. It is probable therefore that the genus is well represented on this continent.

211. **Cæcum diminutum.** Nov. sp.

Shell well arcuated, slender, with the diameter uniform, except near the summit: white: with about 17 stout rings, which are rather distant and are but slightly flattened at the summits, followed by about 10 rings which are small and less prominent: apex lateral, not prominent.

Length .06 inch; breadth .018 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found.

212. **Cæcum eburneum.** Nov. sp.

Shell rather slender, well arcuated, scarcely widening towards the aperture, slightly contracted at the summit: ivory white: with about 33 broad stout approximate rings with flat summits; with the first 4 to 10 rings and sometimes the last 2 or 3, very prominent and less approximate, and the rest slightly prominent and closely approximate: apex prominent.

Length .09 inch; breadth .025 inch.

A var. (?) has only 24 rings, of which the last 3 or 4 are prominent, indicating maturity.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

22 specimens were found in the sand.

213. **Cæcum firmatum.** Nov. sp.

Shell rather stout, well arcuated, widening towards the aperture, moderately contracted at the summit: ivory white: with about 25 very stout broad prominent not closely approximate rings, with flat summits: apex not very prominent.

Length .09 inch; breadth .03 inch.

A variety (?) is more slender, and has the ribs less prominent.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

85 specimens were collected from the sand.

214. **Cœcum læve.** Nov. sp.

Shell well arcuated, rather stout, of nearly uniform diameter: white: smooth and shining: apex very prominent.

Length .08 inch; breadth .027 inch.

Var. (?) *minus* is more slender, with the apex less prominent.

Length .062 inch; breadth .02 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found, viz. 1 of each variety.

215. **Cœcum laqueatum.** Nov. sp.

Shell slender, moderately arcuated, with the diameter regularly increasing: white: longitudinally furrowed with about 20 shallow somewhat unequal grooves: apex moderately prominent, lateral.

Length .11 inch; breadth .028 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were obtained.

216. **Cœcum monstrosum.** Nov. sp.

Shell well arcuated, stout in the lower half and very slender in the upper half, with the transition abrupt, as if the effect of an accident: ivory white: on the upper part with about 18 rather stout approximate moderately prominent rings with flat



summits; in the lower part with about 12 very stout prominent not closely approximate rings with flat summits; with 2 or 3 ribs on the middle with intermediate characters: apex prominent.

Length .09 inch; breadth of the upper part .018 inch; breadth of the lower part .03 inch.

This extraordinary shell appears like a monstrosity. It cannot however be a deformed *C. firmatum*, since it is the *last half* of the shell which resembles that species. If it were the last half which is contracted, it would look more like the effect of an accident. But accidents to mollusks do not, so far as we have seen, cause a greater development of the shell.

7 specimens, agreeing in all the above described characters, establish the species.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

217. **Cæcum parvum.** Nov. sp.

Shell well arcuated, slender, of nearly uniform diameter: white: with about 15 acute-edged moderately prominent distant rings: apex lateral, prominent.

Length .065 inch; breadth .019 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was obtained.

218. **Cæcum pygmæum.** Nov. sp.

Shell well arcuated, slender, of nearly uniform diameter: white: with about 23 narrow but very prominent rings with flattened summits: apex lateral, prominent.

Length .06 inch: breadth .018 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found.

**CHEMNITZIA.**—The following species of this genus, with the exception of *C. communis* and *C. emarginata*, have the axis of the first whorl nearly or quite perpendicular to the axis of the other whorls, constituting a subacute, subtransparent, smooth and colorless apex. This remark, however, cannot yet be applied to *C. major*, the unique specimen of which has lost the apex.

As in *Vitrinella* and in some other groups of minute tropical species, the number of individuals is small in proportion to the number of species. The following 12 species are represented by 129 specimens, of which 90 belong to one species, and 21 others belong to 2 species, leaving 9 species represented by only 18 specimens.

219. **Chemnitzia aculeus.** Nov. sp.

Shell conic, very slender: white: with, on each whorl, about seventeen obtuse ribs, which terminate abruptly at the periphery of the last whorl: spire with the outlines rectilinear except near the apex: whorls twelve, moderately convex, with a well impressed suture; last whorl with the periphery subangular: aperture subovate: labrum thin: columella scarcely curved: umbilicus wanting.

Mean divergence about  $13^{\circ}$ ; length .18 inch; breadth .04 inch; length of spire .145 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

4 specimens were found in the sand.

220. **Chemnitzia acuminata.** Nov. sp.

Shell fusiform conic: dingy white: with about sixteen or eighteen transverse somewhat oblique ribs, which terminate ab-

ruptly on the periphery of the last whorl: spire with the outlines nearly rectilinear: whorls eight, very acutely shouldered above, slightly convex, with a deep suture; last whorl long: aperture subovate, acute at both extremities: labrum thin: umbilicus wanting.

Mean divergence about  $23^{\circ}$ ; length .11 inch; breadth .043 inch; length of spire .07 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

Only 1 specimen was obtained.

221. **Chemnitzia affinis.** Nov. sp.

Shell long, conic: pale yellowish brown: with, on each whorl, about twenty-four rather slender ribs, which terminate abruptly at the periphery of the last whorl; very smooth anteriorly: spire with the outlines nearly rectilinear: whorls ten, moderately convex, with a well impressed suture; last whorl angular at the periphery: aperture subovate: labrum thin: columella rather stout: umbilicus wanting.

Mean divergence about  $18^{\circ}$ ; length .21 inch; breadth .055 inch; length of spire .165 inch.

Most easily distinguished from *C. striosa* (p. 393), by the sculpture of the last whorl.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found in the sand.

222. **Chemnitzia clathratula.** Nov. sp.

Shell ovate conic, much elongate: white: with, on each whorl, about thirty minute ribs, which gradually become obsolete on the periphery of the last whorl, and which are decussated by spiral raised lines, of which five or six appear on the spire

and of which the remainder cover the anterior part of the last whorl: apex very minute: spire with the outlines nearly rectilinear: whorls eight, more or less angular in the upper part, with a well impressed suture; last whorl rather long, with a well rounded periphery: aperture subovate: labrum thin: columella rather stout: umbilicus wanting.

Mean divergence about  $16^{\circ}$ ; length .13 inch; breadth .04 inch; length of spire .1 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

10 specimens, in various stages of growth, were collected from the sand.

223. **Chemnitzia communis.** Nov. sp.

Shell long, fusiform conic: dingy white: with, on the penult whorl, about twenty-two transverse ridges, and on the last whorl a greater number, which are less prominent, and which become obsolete anteriorly: with spiral ridges, of which four or five are seen on the spire, and which on the last two whorls are as prominent as the transverse ridges, but above are less developed: apex with the axis oblique: spire with the outlines curvilinear: whorls eight, moderately convex, with a well impressed suture: last whorl rather long: aperture ovate, acute above, very broadly effuse below: labrum rather thin, but not sharp: columellar lip well thickened, below reflected over a minute umbilical indentation: columella with one small plait. A large specimen has the following dimensions:—

Mean divergence about  $23^{\circ}$ ; length .165 inch; breadth .05 inch; length of spire .11 inch.

*Station*.—Under stones near low water mark.

*Habitat*.—Panama and Taboga; C. B. A.!

90 specimens were collected.

224. **Chemnitzia gracilior.** Nov. sp.

Shell very long, conic: very pale yellowish brown: with, on each whorl, about twenty-eight slender ribs, which terminate abruptly just below the periphery of the last whorl: with a well impressed spiral line next behind the anterior termination of the ribs, and a few obsolete spiral striae: spire with the outlines nearly rectilinear except near the apex: whorls twelve, slightly convex, with a well impressed suture: aperture ovate, acute above: labrum very thin: columella a little curved: umbilicus wanting.

Mean divergence about  $13^{\circ}$ ; length .81 inch; breadth .06 inch; length of spire .255 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

2 specimens were found in the sand.

225. **Chemnitzia major.** Nov. sp.

Shell conic, long: dingy white: with, on each whorl, about twenty-four stout obtuse approximate ribs, which are obsolete anteriorly; with lightly impressed fine spiral striae over all the surface except the summits of the ribs: spire with the outlines rectilinear: whorls fifteen, moderately convex, with a well impressed suture: aperture subovate: labrum thin: columella nearly straight: umbilicus wanting.

Mean divergence about  $17^{\circ}$ ; length .38 inch; breadth .09 inch; length of spire .81 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

1 specimen only was found.

226. **Chemnitzia marginata.** Nov. sp.

Shell fusiform cylindric; dingy white: with, on each whorl,

eleven or twelve very prominent strong compressed ribs : in the interspaces with fine spiral striae, of which five or six are seen on the penult whorl : apex with the axis oblique : spire with the outlines curvilinear : whorls seven, margined above with a spiral compressed ridge, moderately convex, with a well impressed suture : last whorl with the periphery rounded : aperture small, oblique, ovate : labrum thin : labium with a distinct deposit : umbilicus wanting.

Mean divergence about  $28^{\circ}$  ; length .115 inch ; breadth .042 inch ; length of spire .08 inch.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

2 specimens were found.

227. **Chemnitzia Panamensis.** Nov. sp.

Shell long, conic : white : with, on each whorl, about twenty-seven oblique ribs, which become obsolete on the middle of the last whorl, the anterior part of which is very smooth : spire with the outlines nearly rectilinear : whorls twelve, moderately convex, with a well impressed suture : last whorl sub-angular at the periphery : aperture obliquely ovate : labrum thin : columella nearly straight : umbilicus wanting.

Mean divergence about  $17^{\circ}$  ; length .22 inch ; breadth .055 inch ; length of spire .17 inch.

*Station*.—In the sand between high water and half tide levels.

*Habitat*.—Panama ; C. B. A. !

11 specimens were found on the reef.

228. **Chemnitzia similis.** Nov. sp.

Shell long, conic : white : with, on each whorl, about twenty-six rather obtuse ribs, which terminate abruptly on the periphery of the last whorl : spire with the outlines nearly rectili-

near: whorls eleven, convex, with a rather deep suture: last whorl rather long, with the periphery well rounded: aperture subovate: labrum thin: columella straight: umbilicus wanting.

Mean divergence about  $17^{\circ}$ ; length .17 inch; breadth .045 inch; length of spire .13 inch.\*

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found in the sand.

229. **Chemnitzia striosa.** Nov. sp.

Shell long, conic: yellowish brown: with, on each whorl, about forty very minute slender ribs, which gradually become obsolete on the periphery of the last whorl; covered with distinct spiral striæ, of which one a little below the suture and also those which are anterior are larger: spire with the outlines nearly rectilinear: whorls ten, slightly convex, with a well impressed suture: aperture ovate, acute above: labrum thin: columella a little twisted: umbilicus wanting.

Mean divergence about  $20^{\circ}$ ; length .21 inch; breadth .06 inch; length of spire .16 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found in the sand.

230. **Chemnitzia turrita.** Nov. sp.

Shell subcylindric in the lower whorls, conic in the upper whorls: white: with, on each whorl, about eighteen sharp compressed slender ribs, which are less prominent on the last whorl, and terminate abruptly at its periphery; with an impressed spiral line next below the upper margin of the whorls, another at the periphery of the last whorl, and an anterior spiral groove: spire with the outlines curvilinear above the middle, otherwise nearly rectilinear: whorls ten, acutely shouldered, slightly con-

vex, with a well impressed suture; last whorl angular at the periphery: aperture subovate: labrum thin: columella straight: umbilicus wanting.

Mean divergence about  $23^{\circ}$ ; length .185 inch; breadth .055 inch; length of spire .14 inch. \*

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

3 specimens were found in the sand.

231. **Littorina (?) anglostoma.** Nov. sp.

Shell obliquely ellipsoidal: dingy white: surface covered with deep regular spiral striæ: apex obtuse: spire rather small with curvilinear outlines: whorls three and one half, very convex, with a distinct suture: aperture subeffuse, nearly semi-elliptical, the inner lip being straight, and well developed: umbilicus conspicuous.

Mean divergence about  $85^{\circ}$ ; length .13 inch; breadth .1 inch; length of spire .055 inch.

The generic character of this species is doubtful. The shell resembles some small species of *NARICA*.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

3 specimens were found in the sand.

232. **Littorina aspera.**

*Synonymy.*

*Littorina aspera* Phil. in Proc. Zool. Soc. Lond. p. 139.

Dec. 1845.

——— Phil. Abbild. II, pl. 4. f. 13.

Mar. 1847.

The young are very commonly much angulated near the periphery of the last whorl, as in several other species. They are also more vividly colored. Some extreme examples of this kind might at first be supposed to belong to a distinct species; but the intermediate examples are far more numerous, showing



that the former are the extreme limits of variation rather than distinct types.

*Station*.—We found this species on ledges and large fragments of rocks at or above high water mark.

*Habitat*.—Sitcha, Mexico, and San Salvador; Philippi.

San Salvador; Jay.

Taboga, and Panama; C. B. A.!

We collected 2400 specimens. Dr. Philippi's statement of habitat is "Oceanus Pacificus, Americam borealem alluens; Sitcha; ora Reipublicæ Mexico; S. Salvador in America centrali:" Philippi. It is scarcely credible that this species should have been found in so high a latitude as Sitcha. No original testimony is cited.

*Littorina aspera*, var., is more slender, and the sculpture is reduced to spiral impressed lines. 33 specimens were collected at Panama.

233. ***Littorina atrata***. Nov. sp.

Shell conic when young, subglobular when mature: black, sometimes with a few whitish spots on the last whorl: with spiral keels varying in size and number; usually a strong sharp keel is seen on the periphery of the last whorl and in the suture, and another appears on the upper part of the whorls, with one slightly developed between them; with two or three well developed keels beneath the periphery of the last whorl: apex acute: spire small, eroded in full grown shells, with the outlines moderately curvilinear: whorls four, a little convex, with a well impressed suture; last whorl with an acute periphery in the young, rounded in the mature shell: aperture broadly ovate: labrum well excurved: umbilicus very small. This species is variable in form and in sculpture.

Mean divergence from 65° to 90° in different stages of growth; length .08 inch; breadth .06 inch.

*Station*.—In or near cavities of rocks between half tide and high water levels.

*Habitat*.—Panama; C. B. A.!  
3,300 specimens were collected.

234. **Littorina conspersa.**

*Synonymy.*

*Littorina conspersa* Phil. Abbild. II. pl. 4. f. 14.

March 1847.

Some individuals, of a more ventricose form and with broader striæ, approximate towards *L. puncticulata* Phil.; but for the most part the two species are easily distinguished.

*Station*.—This species was found chiefly on large fragments of rock at high water mark.

*Habitat*.—Real Llejos; Philippi.

Taboga and Panama; C. B. A.!

320 specimens were collected.

235. **Littorina (?) excavata.** Nov. sp.

Shell obliquely ellipsoidal: very dark brown at the apex, in the umbilical region and in the fauces, otherwise pale horn color: with several spiral raised lines, and intermediate very minute spiral striæ; apex subacute: spire small, with the outlines very curvilinear: whorls nearly four, compressed, with a distinct suture; last whorl ventricose: aperture subovate: labrum very sharp, but thickened much a little behind the edge: columella dilated and thickened: region around the umbilicus much excavated: umbilicus small.

Mean divergence about 90°; length .17 inch; breadth .13 inch; length of spire .04 inch.

The generic character of this species is doubtful. It resembles a small *NARICA*.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found in the sand.

236. *Littorina fasciata*.*Synonymy.*

<i>Littorina fasciata</i>	Gray in Zool. Beech. Voy. p. 139.	1839.
—————	Siebold in Wiegman. Archiv. p. 209.	1839.
—————	Phil. Abbild. II. p. 37. pl. 5. f. 1, 2.	Apr. 1847.

*Station*.—This species was found, with *L. varia*, Sowb., on the trunks and branches of small trees, which were growing between half tide and high water levels.

*Habitat*.—Pacific Ocean? Gray.

Tumbez, Peru; Cuming! Philippi.

Panama; C. B. A.!

160 specimens were collected.

237. *Littorina* (!) *foveata*. Nov. sp.

Shell globose conic: dingy white, with a very broad dark brown spiral stripe occupying the middle of the last and more or less of the upper whorls: with several inequidistant spiral raised lines: apex subacute: spire with the outlines moderately curvilinear: whorls nearly four, subangular, with a distinct suture; last whorl angular below the middle: aperture subovate: labrum very sharp, but much thickened a little behind the edge: columella dilated and thickened: region around the umbilicus much excavated, and forming with the umbilicus a funnel-shaped pit.

Mean divergence about 80°; length .19 inch; breadth .15 inch; length of spire .08 inch.

The generic character of this species is doubtful. It may possibly be a *NARICA*.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found in the sand.

238. **Littorina (?) megasoma.** Nov. sp.

Shell obliquely ovoid : dingy white : with eight or nine small spiral ridges, of which three are seen on the spire ; with very coarse deep regular transverse striæ : apex acute : spire very small, with the outlines nearly rectilinear : whorls three, angular, with an excavated suture : last whorl very large and obliquely dilated : aperture subelliptical, with the margin continuous and thin : umbilical region well defined by the anterior spiral ridge, well excavated, and forming with the umbilicus a funnel-shaped pit.

Mean divergence about  $135^{\circ}$  ; length .09 inch ; breadth .09 inch ; length of spire .035 inch.

This species also is referred to *Littorina* with much hesitation : it approaches *Narica* more nearly than any of the species which we have mentioned as resembling that genus.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

1 specimen was found in the sand.

239. **Littorina parvula ?***Synonymy.*

? *Littorina parvula* Phil. in Zeitschr. Malak. vol. for 1848.

p. 149. - - - - - March 1849.

If our shell is distinct from Philippi's species, it may take the name of *L. dubiosa*, with the following description.

Shell conoid : blue, whitish next below the suture and anteriorly, with oblique brown bars on the whitish parts ; very dark brown inside, spotted with brown and white in the labrum : with several impressed spiral lines, which are more or less indistinct on the spire and on the middle of the last whorl, and of which one next above the angle of the last whorl is deeper : apex subacute : spire with the outlines moderately curvilinear :

whorls nearly six, a little convex, with a distinct suture; last whorl angular: aperture ovate, acute above, slightly effuse: columellar lip slightly flattened and dilated.

Mean divergence about  $55^{\circ}$ ; length .25 inch; breadth .17 inch.

Some of the more strongly striated and colored individuals resemble the young of *L. aspera*, but the spire is always less acute.

*Station*.—In the cavities of a rough ledge of rocks, at and above high water mark.

*Habitat*.—Panama; E. B. Philippi! Philippi.

Taboga; C. B. A.!

600 specimens were taken at Taboga.

## 240. *Littorina pulchra*.

### *Synonymy*.

<i>Littorina pulchra</i>	Sowb. Gen. No. 37. f. 2, 3.	1824.
—————	Griff. An. King. Moll. pl. 1. f. 3.	1834.
<i>Turbo pulcher</i>	Swains. Malac. p. 207. f. 39.	1840.
<i>Littorina pulchra</i>	Reeve Conch. Syst. pl. 222. f. 23.	1842.
—————	Lam. An. sans Vert. IX. 208. No. 7.	
	(Desh.ed.) - - - - -	1843.
—————	Lam. An. sans Vert. III. Pt. 2. p. 574.	
	No. 7. (Desh. ed. tert.) - - -	1844.
—————	Phil. Abbild. II. pl. 1. f. 1.	Aug. 1846.
—————	Reeve Elem. Conch. pl. 12. f. 60.	1848?

*Station*.—We found this species on mangrove trees, in a very dense thicket, which was growing from a soil of black unctuous mud a little below high water mark.

*Habitat*.—Unknown; Deshayes.

"Panama, West coast of Columbia;" Philippi.

Pacific; Jay.

Panama; C. B. A.!

This species is probably rare. With much labor we obtained 11 specimens in the mangrove thicket, which is about two miles east of Panama. Some of them are fully equal in size and beauty to the specimen which is figured by Dr. Philippi. The largest is 1.55 inch long and 1.15 inch wide.

#### 241. *Littorina puncticulata*.

##### *Synonymy.*

*Littorina puncticulata* Phil. Abbild. II. pl. 4. f. 15. March 1847.

*Station*.—On fragments of rocks at high water mark.

*Habitat*.—Real Llejos; Philippi.

Taboga; C. B. A.!

80 specimens were collected.

#### 242. *Littorina varia*.

##### *Synonymy.*

*Littorina varia* Sowb. Gen. No. 37. f. 4. 1824.

——— ——— Reeve Syst. Conch. pl. 222. f. 4. 1842.

——— ——— Phil. Abbild. II. Pl. 1. f. 2, 3. Aug. 1846.

*Station*.—This species was found on the trunks and branches of small trees which were growing between half tide and high water levels.

*Habitat*.—Panama; Sowerby.

Panama, Guayaquil, Cusma (Peru); Philippi.

"Chiloë (?) nach einer brieflichen Angabe von Herrn Petit;" Philippi.

Peru; Jay.

Panama; C. B. A.!

300 specimens were collected.

Since this species inhabits the middle regions of the marine zoological province on the west side of tropical America, it is extremely improbable that it should also inhabit a region in so

remote a latitude as Chiloë. Dr. Philippi has, therefore, with much reason, quoted with doubt the statement of M. Petit.

243. **Rissoa clandestina.** Nov. sp.

Shell long, ovate conic: dingy white: with, on each whorl, about eighteen or nineteen stout prominent compressed ribs, which are continued to the anterior extremity: apex acute: spire with the outlines moderately curvilinear: whorls seven, moderately convex: with a well impressed suture: last whorl rather large: aperture large, oblique, moderately effuse at both extremities: labrum much advanced along the middle, much thickened with a broad varix: umbilicus wanting.

Mean divergence about  $30^{\circ}$ ; length .115 inch; breadth .05 inch; length of spire .07 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found.

244. **Rissoa firmata.** Nov. sp.

Shell long, ovate conic: dingy white: with, on each whorl, about twelve very stout, prominent, rather acute ribs, which are continued to the anterior extremity: apex acute: spire with the outlines curvilinear: whorls seven, convex, with a well impressed suture: last whorl rather large: aperture oblique, subovate, effuse at both extremities: labrum well advanced along the middle, thickened with a broad stout rib: umbilicus wanting.

Mean divergence about  $30^{\circ}$ ; length .185 inch; breadth .075 inch; length of spire .13 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found in the sand.

245. **Rissoa fortis.** Nov. sp.

Shell long, ovate conic: white: with, on each whorl, about twenty-two to twenty-four stout prominent approximate ribs, which converge at the anterior extremity, where they become very small: apex acute: spire with the outlines curvilinear: whorls ten, slightly shouldered, moderately convex, with a well impressed suture; last whorl ventricose: aperture oblique, ovate, retreating above, deeply effuse: labrum much advanced in the lower half, very thick: labium thick: umbilicus wanting.

Mean divergence about  $33^{\circ}$ ; length .29 inch; breadth .12 inch; length of spire .185 inch.

This species resembles *R. ambigua* Gould, and is very different from *Rissoina Inca* Orb.

*Station*.—Under stones near low water mark.

*Habitat*.—Taboga; C. B. A.!

31 specimens were collected.

246. **Rissoa (?) inconspicua.** Nov. sp.

Shell ovate conic: white: with several spiral ridges, of which two or three are seen on the spire: with about twelve or fourteen transverse narrow ridges, which are obsolete anteriorly: apex subacute: spire with curvilinear outlines: whorls four, very convex, with a deep suture: last whorl rather ventricose, short: aperture orbicular, scarcely effuse: lip well thickened: with a very minute umbilicus. Perhaps this species should have been referred to *CINGULA*.

Mean divergence about  $55^{\circ}$ ; length .045 inch: breadth .03 inch; length of spire .032 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was obtained.



247. **Rissoa infrequens.** Nov. sp.

Shell very long, ovate conic: white: with, on each whorl, sixteen very obtuse slightly elevated indistinct ribs, which are separated only by striæ, and a few microscopic revolving striæ: apex subacute: spire with the outlines nearly rectilinear: whorls seven, contracted above, otherwise convex or subangular with a moderately impressed suture; last whorl long, subangular: aperture oblique, subovate, scarcely effuse: labrum much excurved, well thickened: umbilicus wanting.

Mean divergence about  $23^{\circ}$ ; length .24 inch; breadth .075 inch; length of spire .18 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

1 specimen was obtained.

248. **Rissoa Janus.** Nov. sp.

Shell long, ovate conic: white: anteriorly with fine crowded spiral striæ; elsewhere covered with small crowded transverse ribs, which on the last whorl appear merely as transverse striæ becoming obsolete near the periphery: apex acute: spire with the outlines moderately curvilinear: whorls nine, moderately convex, with a lightly impressed suture: aperture large, oblique, moderately effuse below, more deeply effuse above: labrum much advanced along the middle, thickened by a broad stout varix: umbilicus wanting.

Mean divergence about  $30^{\circ}$ ; length .19 inch; breadth .07 inch; length of spire .115 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

2 specimens were found in the sand.

Var. *a* is larger, being .24 inch long.

249. **Rissoa notabilis.** Nov. sp.

Shell long ovate-conic: white: with, on each whorl, about fourteen transverse very prominent ribs, which have concave summits; with four spiral keels, of which the upper two are more distant and are seen on the spire on each side of the suture; the transverse ribs are smaller in the parts between the second and third keels, and are obsolete below the third: apex subobtusate, smooth and shining: spire with the outlines rectilinear except near the apex: whorls six, abruptly shouldered, planulate, with the suture subcanaliculate: aperture ovate: umbilicus wanting.

Mean divergence about  $24^{\circ}$ ; length .06 inch; breadth .027 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found.

250. **Rissoa scalariformis.** Nov. sp.

Shell elongate, ovate conic: dingy white: with, on each whorl, eleven stout prominent acute compressed ribs, which are continuous on the successive whorls; covered with microscopic spiral striæ, which ascend the sides of the ribs but are obsolete on their summits: apex acute: spire with the outlines moderately curved: whorls eight, convex, with a well impressed suture: aperture obliquely ovate, effuse above and below: labrum moderately thickened, well excurved and produced along the middle.

Mean divergence about  $38^{\circ}$ ; length .13 inch; breadth .05 inch; length of spire .08 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found in sand.

251. **Rissoa** ———. Sp. indet.

The sculpture of this shell shows it to be distinct from any others which we have enumerated: but the apex and the lip are both defective in the single specimen found at Panama.

Family—TROCHIDÆ.

252. **Cingula (?) inconspicua.** Nov. sp.

Shell ovate fusoid: white: with several spiral ridges, of which four are seen on the penult whorl, and of which the upper two are less prominent; anteriorly the ridges are also less prominent; with transverse ridges decussating the upper spiral ridges and terminating at the third: apex subacute: spire with the outlines a little curvilinear: whorls five, a little convex, with a well impressed suture; last whorl small: aperture small, ovate, acute above: labrum rather thin: labium well developed: umbilical region a little indented.

Mean divergence about  $30^{\circ}$ ; length .065 inch; breadth .035 inch; length of spire .045 inch.

Some authors would refer this species to *Rissoa*: but the aperture is Turbinoid rather than Melanoid.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

3 specimens were found in the calcareous sand.

253. **Cingula paupercula.** Nov. sp.

Shell conoid: dingy white, sometimes with a pale brown spiral stripe on the middle of the whorls: surface smooth: apex subacute: spire with the outlines nearly rectilinear: whorls five, planulate, with a well impressed suture: aperture broadly ovate: labrum slightly thickened: labium well developed: umbilicus very minute.

Mean divergence about  $33^{\circ}$ ; length .085 inch; breadth .05 inch; length of spire .058 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

4 specimens were found in the calcareous sand.

254. **Cingula (?) terebellum.** Nov. sp.

Shell subcylindric: white: with four very prominent compressed acute spiral keels, of which two are seen on the spire: apex subacute: spire with the outlines moderately curvilinear: whorls six, slightly convex, with an indistinct suture; last whorl small: aperture small, ovate, acute above: labrum thin: labium indistinct: umbilicus wanting.

Mean divergence about  $28^{\circ}$ ; length .08 inch; breadth .04 inch; length of spire .055 inch.

*Station*. Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found in the calcareous sand.

255. **Cingula (?) turrita.** Nov. sp.

Shell conic, elongate: white: with numerous prominent compressed transverse ribs, which terminate a little above the suture, where they are crossed by a spiral raised line; anteriorly with two or three spiral ridges: apex acute: spire with the outlines nearly rectilinear: whorls six, above abruptly shouldered, planulate, with the suture in a broad groove, which is continued along the periphery of the last whorl: aperture small, ovate, acute above, very slightly effuse: labrum thin: umbilical region with a very minute indentation.

Mean divergence about  $30^{\circ}$ ; length .08 inch; breadth .033 inch; length of spire .024 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found in the sand.

256. **Litiopa (?) saxicola.** Nov. sp.

Shell long ovate conic: pale horn color, subtransparent: surface covered with deep regular crowded spiral striæ; apex acute: spire with the outlines slightly curvilinear: whorls five, convex, with a well impressed suture; last whorl rather ventricose: aperture broadly ovate, acute above: labrum thin: labium with a distinct deposit: umbilicus wanting.

Mean divergence about  $45^{\circ}$ ; length .14 inch; breadth .075 inch; length of spire .07 inch.

The generic character of this species is doubtful. The shell has the appearance of a *Litiopa*, but the station is that of *Cingula*, to which Dr. Gould is inclined to refer it. We leave it doubtful, until the soft parts shall have been examined.

*Station*.—Under stones at low water mark.

*Habitat*.—Panama; C. B. A.!

7 specimens were found on the reef.

257. **Adeorbis (?) abjecta.** Nov. sp.

Shell subglobular: sometimes wholly of a yellowish white or wholly of a dingy black, or partly of each color: with several stout spiral raised lines and more or less distinct intermediate striæ on the upper part of the whorls: apex subacute: spire small, much eroded in mature shells: whorls three or more, convex, with a distinct suture; last whorl ventricose: aperture effuse, nearly semicircular, the inner lip being straight: umbilicus small.

Mean divergence about  $110^{\circ}$ ; length .1 inch; breadth .09 inch; length of spire .045 inch.

*A. scaber* Phil., from Panama, is described as having sublamellar striæ of growth and an acute periphery of the last whorl. Our shell resembles *Littorina porcata* Phil. of the Gallapago Is.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

40 specimens were found in the sand.

**VITRINELLA**.—The number of species and the scarcity of individuals in this genus of minute shells is remarkable. To the 5 species from Jamaica, of which the genus was originally constituted, we now add 12 from Panama. It will be seen, however, that we have only 60 specimens, of which 24 belong to one species, and 13 to another.

258. **Vitrinella concinna**. Nov. sp.

Shell discoidal: white: with five prominent acute spiral keels, of which one is next below the suture: the second is about equidistant between the suture and the periphery of the last whorl; the third is a little below the periphery; the fourth is on the middle of the lower side of the last whorl; and the fifth is within the umbilicus; with a more or less distinct ridge between the first two keels; with curved transverse elevated lines, which become obsolete on the last half of the last whorl: apex minute, papillary: spire nearly flat: whorls three and one-half: planulate above, with the suture subcanaliculate; last whorl declining near the aperture below the plane of the spire: aperture orbicular, very oblique: lip moderately thickened, slightly angulated by the keels: umbilicus broad and deep.

Divergence about  $175^{\circ}$ ; greatest breadth .062 inch; least breadth .05 inch; height .03 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

Only 1 specimen was found.

259. **Vitrinella exigua**. Nov. sp.

Shell subdiscoidal: white: on the periphery of the last whorl

is a keel, which is visible on a small part of the penult whorl, and then runs into the suture; with another somewhat less prominent keel below the periphery, and a third, which is nearly obsolete, around the umbilicus; with not very distinct transverse raised lines, which are most developed between the two lower keels: apex obtuse: spire convex, slightly elevated: whorls nearly three, with a well impressed suture, very convex above so as to simulate a moderately developed carina; last whorl concave on each side of the periphery: aperture orbicular: labrum slightly thickened, modified by the ends of the spiral keels; umbilicus very narrow, deep.

Mean divergence about  $170^{\circ}$ ; greatest breadth .045 inch; least breadth .036 inch; height .021 inch.

*Station*.—Unknown.

*Habitat*.—Panama.—C. B. A.!

7 specimens were found in the calcareous sand.

260. **Vitrinella Janus.** Nov. sp.

Shell subdiscoidal: white: with four very narrow acute spiral keels, of which one on the periphery is very prominent, another a little below the periphery is less prominent, and the other two, on the middle of the upper and lower sides, are moderately developed; with minute spiral striæ within the lower keel; otherwise with transverse striæ, which are interrupted by the keels: apex prominent; spire moderately elevated: whorls three and one-third, with a distinct suture: aperture orbicular, very oblique: lip slightly thickened, angulated by the keels: umbilicus deep.

Mean divergence  $160^{\circ}$ ; greatest breadth .068 inch; least breadth .06 inch; height .03 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was obtained.

261. **Vitrinella minuta.** Nov. sp.

Shell discoidal: dingy white, shining: with excessively minute transverse striæ: apex obtuse: spire scarcely elevated: whorls nearly three, depressed above, with a well impressed suture; last whorl much depressed, subangular at the periphery: aperture rather large, orbicular: labrum slightly thickened: umbilicus rather deep, nearly covered.

Mean divergence about  $170^{\circ}$ ; greatest breadth .042 inch; least breadth .036 inch; height .017 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

4 specimens were found in the calcareous sand.

262. **Vitrinella modesta.** Nov. sp.

Shell discoidal: dingy white, translucent: with a spiral elevated line next below the suture, and a spiral keel around the umbilicus; with few microscopic spiral striæ about the periphery of the last whorl: apex not prominent: spire a little elevated and regularly convex: whorls three and one-half, with the suture distinct: aperture orbicular: umbilicus deep.

Mean divergence  $170^{\circ}$ : greatest breadth .06 inch; least breadth .05 inch; height .028 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was obtained.

263. **Vitrinella Panamensis.** Nov. sp.

Shell subdiscoidal: white: with a stout spiral keel on each side of the periphery of the last whorl, and two others on the lower side of the shell, of which one next to the umbilicus is slightly prominent; with transverse rather distant curved ribs: apex obtuse: spire convex, but little elevated: whorls a little



more than three, convex above and concave below the middle, with a distinct suture: aperture orbicular: labrum angulated externally by the spiral ridges, a little thickened: umbilicus deep, narrow. A variety has the ridge around the umbilicus well developed.

Mean divergence about  $160^{\circ}$ ; greatest breadth .07 inch; least breadth .06 inch; height .04 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

24 specimens were found in the calcareous sand.

264. **Vitrinella parva.** Nov. sp.

Shell subdiscoidal: white: with numerous stout prominent transverse ribs; with, on each side of the periphery of the last whorl, a not very prominent keel, of which the upper one is visible on the spire: apex very obtuse: spire convex, slightly elevated: whorls three and a half, angular above, concave between the angle and the keel, with the suture not very distinct; last whorl very large: aperture orbicular, very oblique in consequence of the advance of the labrum above: lip slightly thickened: umbilicus deep, narrow. This species resembles *V. Panamensis*.

Mean divergence about  $160^{\circ}$ ; greatest breadth .047 inch; least breadth .04 inch; height .026 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

13 specimens were found in the calcareous sand.

265. **Vitrinella perparva.** Nov. sp.

Shell subdiscoidal: white: with a very prominent acute spiral keel on each side of the periphery of the last whorl, and a less prominent one around the umbilicus; with transverse

wrinkles, which are obsolete on the upper part of the whorls; apex obtuse: spire flat: whorls nearly three, moderately convex, with a distinct suture; last whorl very large: aperture orbicular, very oblique: lip slightly thickened: umbilicus deep.

Mean divergence  $180^{\circ}$ ; greatest breadth .037 inch; least breadth .031 inch; height .015 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

3 specimens were found in the calcareous sand.

266. **Vitrinella regularis.** Nov. sp.

Shell subdiscoidal: pearl white: smooth and shining, with an impressed spiral line just below the suture: apex subacute: spire convex, moderately elevated: whorls four and one-half, convex, with a distinct suture; last whorl somewhat ventricose: aperture nearly orbicular: lip thin: umbilical region deeply indented.

Mean divergence about  $120^{\circ}$ ; greatest breadth .07 inch; least breadth .06 inch; height .05 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found in the calcareous sand.

267. **Vitrinella seminuda.** Nov. sp.

Shell discoidal: white: above with excessively minute striae of growth; beneath covered with spiral striae: apex obtuse: spire scarcely elevated, convex: whorls three, moderately convex, with a distinct suture; last whorl with the periphery subangular: aperture orbicular, very oblique: lip thin: umbilicus narrow, deep.

Mean divergence about  $170^{\circ}$ ; greatest breadth .062 inch; least breadth .053 inch; height .32 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found in the calcareous sand.

268. **Vitrinella tricarinata.** Nov. sp.

Shell subdiscoidal: white: with three prominent spiral keels, one on the periphery of the last whorl, and one on each side of it, of which the upper one is visible on the spire: with some irregular transverse striæ: spirally striate within the umbilicus: apex subacute: spire convex, a little elevated: whorls three, depressed above and compressed below the keel, with a distinct suture: aperture oblique, orbicular, angulated by the keels: umbilicus wide and deep.

Mean divergence about  $150^{\circ}$ ; greatest breadth .072 inch; least breadth .065 inch; height .035 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found in the calcareous sand.

269. **Vitrinella valvatoides.** Nov. sp.

Shell discoidal: whitish, sub-transparent: last whorl with a prominent keel above, which is visible on the spire, with another prominent keel beneath, and a third, less developed, around the umbilicus: spire concave: whorls three, concave above the keel, with a distinct suture: last whorl subangular at the periphery: umbilicus wide and deep.

Greatest breadth .1 inch; least breadth .075 inch; height .04 inch.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

3 specimens were found in the calcareous sand.

270. **Solarium**. Sp. indet. *a*.

This species closely resembles *S. granulatum* ; it differs from *S. quadriceps* Hinds in having the lower series of tubercles not so large as the upper series : the umbilicus is not so open as in *S. granulatum*.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

3 specimens were obtained.

271. **Solarium**. Sp. indet. *b*.

This species is eminent for the beauty both of its coloring and of its sculpture. It resembles the preceding, and belongs to a group of closely allied species of which several have been described by Dr. Philippi, Mr. Hinds, and others. But few have yet been figured. This also differs from *S. quadriceps* in having the upper girdle larger than the lower one.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

3 specimens were obtained.

272. **Solarium**. Sp. indet. *c*.

This is a small species, finely granulated, of a dark brown color, with the last whorl very convex beneath.

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

We found 6 specimens in the sand.

273. **Trochus catenulatus**.

*Synonymy*.

*Trochus catenulatus* Phil. in Küst. Conch. Cab. p. 110. pl. 18. f. 4. 1847.

*Trochus (Monodonta) catenulatus* Menke in Zeitschr. f. Malak. vol.  
for 1850. p. 173. - - Apr. 1851.

This species belongs to the subgenus *MODULUS*. Its Caribbean analogue is *T. angulatus* Ad.

*Station*.—Unknown.

*Habitat*.—Mazatlan ; Melchers ! Menke.

Taboga ; C. B. A. !

23 specimens were collected in various states of preservation.

274. ***Trochus coronulatus***. Nov. sp.

Shell conic, moderately elevated, thick: dingy white, with broad reddish brown oblique flammules, with the nodules pale red: with minutely undulated spiral raised lines: anteriorly with four or five larger raised lines: with, on the periphery of the last whorl, two spiral nodulous keels, of which one appears on the spire: with a series of larger nodules on the shouldered margin of the whorls: spire with the outlines moderately curvilinear: apex subacute: whorls six, planulate above the keels, with the suture broadly and deeply canaliculate: aperture nearly orbicular: labrum much advanced in the upper part: columella bidentate: umbilicus one third as wide as the aperture, reaching to the apex.

Mean divergence about 90°; length .55 inch; greatest breadth .72 inch; least breadth .6 inch.

*Station*.—Unknown.

*Habitat*.—Taboga; C. B. A. !

We found 2 specimens.

275. ***Trochus leanus***. Nov. sp.

Shell conic, well elevated: pale yellowish or reddish brown, with broad dark brown oblique flammules; anteriorly somewhat articulated with red and yellowish white in fine con-

centric lines: with many elevated granulous spiral lines, of which three larger are next above the suture: spire with the outlines nearly rectilinear: apex acute: whorls nine, planulate or concave next below the suture, very convex or subangular next above the suture, which is moderately impressed; last whorl subplanulate anteriorly: aperture subquadrate: labrum thin: columella obliquely produced, nearly straight: umbilicus wanting.

Mean divergence about  $60^{\circ}$ ; length .48 inch; greatest breadth .44 inch; least breadth .4 inch.

*Station*.—Under stones at low water mark.

*Habitat*.—Panama; C. B. A.!

7 specimens were collected on the reef. We have named this pretty species in honor of Isaac Lea, Esq., of Philadelphia.

### 276. *Trochus lima*.

#### *Synonymy.*

*Trochus lima* Phil. in Zeitschr. f. Malak. vol. for 1849.

p. 159.

Mar. 1850.

——— Phil. in Küst. Conch. Cab. pl. 44. f. 15.

1850.

*Station*.—Under stones, between the low water mark of the spring tides and that of the neap tides.

*Habitat*.—Unknown; Philippi.

Santa Barbara; E. Jewett! Gould MSS.

Panama; C. B. A.!

We collected 75 specimens on the reef.

### 277. *Trochus lividus*.

#### *Synonymy.*

*Trochus lividus* Phil. in Zeitschr. f. Malak. vol. for 1849,

p. 168.

Mar. 1850.

——— Phil. in Küst. Conch. Cab. pl. 45. f. 8.

1850.

This species belongs to the subgenus *MODULUS*.

*Station*.—Unknown.

*Habitat*.—Unknown; Philippi.

Acapulco; E. Jewett! Gould MSS.

Taboga; C. B. A.!

We found 3 specimens.

## 278. *Trochus Panamensis*.

*Synonymy*.

*Trochus Panamensis* Phil. in Zeitschr. f. Malak. p. 127. Aug. 1848.

————— Phil. in Küst. Conch. Cab. pl. 44. f. 16. 1850.

Fresh specimens are very dark colored; but by exposure the shell fades to a red color, as in Küster's figure.

*Station*.—Under stones at low water mark.

*Habitat*.—Panama; E. B. Philippi! Philippi.

Panama; C. B. A.!

65 specimens were collected on the reef.

## 279. *Trochus pellis-serpentis*.

*Synonymy*.

*Trochus pellis-serpentis* Wood Ind. Test. Supp. pl. 5. f. 4. 1828.

*Turbo* ————— Valenc. in Humb. Rec. Obs. II. 273. 1833.

*Trochus strigilatus* Phil. Abbild. I. pl. 2. f. 9. Nov. 1843.

————— *pellis-serpentis* Phil. Abbild. I. Index.

————— Küst. Conch. Cab. p. 105, pl. 17. f. 4. 1849!

*Station*.—On or under rocks and large stones near half tide level. When the tide retires, these animals crawl around over the surfaces of stones and rocks, beneath which they retire after the surfaces become dry. They are therefore collected most easily when following the tide out. We saw them in the greatest numbers and most active at twilight.

*Habitat*.—Panama; Wood: also Jay.

Acapulco; Humboldt & Bonpland! Valenciennes.  
California; Philippi.

West Coast of Mexico and Central America;  
Küster.

Taboga and Panama; C. B. A.!

On the reef at Panama we collected 5 specimens; at Taboga  
we collected 500.

### 280. *Trochus reticulatus*.

#### *Synonymy.*

<i>Trochus reticulatus</i> Wood Ind. Test. Supp. pl. 6. f. 38.	1828.
————— Küst. Conch. Cab. pl. 14. f. 10.	1847.

*Station*.—Under stones at the low water mark of the neap  
tides.

*Habitat*.—Unknown; Wood.  
Panama; C. B. A.!

We collected 600 specimens on the reef.

**TURBO**.—The difference between the shells of Turbo and of Trochus is of little value. The peculiarities of form, which distinguish these genera, are not only inconsiderable and ill defined, but they are also unaccompanied with corresponding differences in the texture, sculpture, or other characters of the shells, or in the characters of the soft parts of the animals. A great number of other genera present in each a difference of outline equal to that which here is made the ground of generic distinction.

The calcareous and the horny opercula present a well defined character. This distinction, however, is not accompanied by corresponding differences in the shells and in the soft parts, and therefore cannot be regarded as of much zoological value. But on account of its convenience we shall for the present distinguish these genera by this character.



281. **Turbo Buschii.***Synonymy.*

<i>Trochus Buschii</i> Phil. Abbild. I. pl. 3. f. 3. 4.	Jan. 1844.
————— Küst. Conch. Cab. pl. 32. f. 1.	1849.
————— <i>inermis</i> Kiener Iconog. pl. 14. f. 2.	1851.

According to Dr. Philippi, this species is commonly mistaken for *T. inermis*. Kiener has figured the Panama shell as *T. inermis*, and a very different species as *T. Buschii*; v. pl. 31. f. 1. On account of the solid calcareous operculum, we have removed the species into Turbo.

*Station*.—On or under stones between the low water mark of the neap tides and that of the spring tides.

*Habitat*.—Panama; Philippi.

Panama; E. Jewett! Gould MSS.

Panama; C. B. A.!

We collected 180 specimens on the reef.

Dr. Philippi cites Von dem Busch as authority for the habitat, but not, we suppose, as original testimony.

282. **Turbo (?) phasianella.** Nov. sp. ?

Shell ovate conoid: color various, mostly red or brown, sometimes uniform, frequently in dark flammules on a light ground, sometimes with spiral darker stripes or series of spots: surface covered with strong spiral striæ: apex subacute: spire conoid, with the outlines moderately curvilinear: whorls five, convex, with a distinct suture: aperture broad ovate, subeffuse: labrum thin: umbilicus very small.

Mean divergence about 64°; length .16 inch; breadth .11 inch; length of spire .08 inch.

Operculum calcareous, very thick and solid. But for the want of a polished surface, this species would have been referred to Phasianella. It may be a Trochus. It may be *Littorina phasianella* Phil. in Zeitschr. Malak. 1848. p. 149.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

In the calcareous sand we collected 112 specimens in various stages of growth.

283. **Turbo rutilus.** Nov. sp.

Shell trochiform, well elevated: bright red, with pale, ill defined transverse streaks: with very numerous small very oblique subnodulous ridges on the spire, which are traversed by two or three small spiral grooves on the lower half of the whorls; anteriorly with six to eight narrow deep inequidistant spiral grooves: spire with the outlines nearly rectilinear: apex obtuse (?); whorls (seven?)\* planulate, with a distinct suture; last whorl with the periphery angular, subplanulate anteriorly: labrum much advanced above: columellar lip very much dilated and thickened, appressed: umbilicus wanting.

Mean divergence about 70°; length 2.5 inches; greatest breadth 3 inches; least breadth 2.7 inches.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

We obtained 1 specimen on the reef. Fragments of a few others were seen.

284. **Turbo saxosus.**

*Synonymy.*

<i>Turbo saxosus</i>	Wood Ind. Test. Supp. pl. 6. f. 45.	1828.
—	Kiener Iconog. pl. 15. f. 2. pl. 16. f. 2.	
—	Küst. Conch. Cab. p. 54. pl. 13. f. 5, 6.	1847.
—	Reeve Conch. Icon. pl. 4. f. 14.	Jan. 1848.
—	Reeve in Proc. Zool. Soc. Lond. p. 49.	March 1848.
—	Reeve Conch. Icon. pl. 13. f. 14.	Apr. 1848.

\* Our unique specimen is imperfect.

Mr. Reeve, in referring only to the MSS. of a private collection for the name of this species, appears to have overlooked the name and the tolerably correct figure in Wood's Index. Three extreme varieties are well represented by the figures in the Conch. Icon. Most of our specimens are intermediate between fig. *a* and fig. *b*, having a second row of tubercles moderately developed above the middle of the last whorl, with a corresponding keel on the spire.

The operculum is very thick and deeply sculptured. A deep indentation corresponds to the apex, and deep narrow furrows occupy arcs of about  $300^{\circ}$ ; of these furrows, the larger is midway between the apex and the margin, and three others are exterior to it. The surface is granular, and the sides of the furrows are rugose.

*Station*.—On rocks, not far from the low water mark of the neap tides.

*Habitat*.—Unknown; Wood.

West Columbia; Cuming! Reeve.

Panama; C. B. A.!

We collected 160 specimens on the reef at Panama. Half grown shells were numerous.

## 285. *Scalaria hexagona*.

### *Synonymy*.

<i>Scalaria hexagona</i>	Sowb. in Proc. Zool. Soc. Lond. p. 29.	Feb. 1844.
—————	Sowb. Thes. Conch. p. 98. No. 60. pl.	
	33. f. 67. - - - - -	1844.

*Station*.—In the sands; Sowerby.

*Habitat*.—Acapulco; Col. Moffat! Sowerby.

Acapulco; Jay.

Panama; C. B. A.!

1 specimen was found.

286. **Scalaria obtusa.***Synonymy.*

*Scalaria obtusa* Sowb. in Proc. Zool. Soc. Lond. p. 29. Feb. 1844.  
 ——— Sowb. Thes. Conch. p. 98, No. 63, pl. 33.  
 f. 54. - - - - - 1844.

*Station.*—Sandy mud at 6 fathoms; Cuming! Sowerby.

*Habitat.*—Punta St. Elena; Cuming! Sowerby.

Panama; C. B. A.!

1 specimen was found.

287. **Scalaria.** Sp. indet. *a.*

2 specimens, one of which was immature, were obtained at Panama.

288. **Scalaria.** Sp. indet. *b.*

1 specimen was obtained at Panama.

289. **Scalaria.** Sp. indet. *c.*

1 immature specimen was obtained at Panama.

## Family—EULIMIDÆ.

290. **Eulima iota.** Nov. sp.

Shell subulate: smooth and shining: with a microscopic line a little below the middle of the whorls, above which line the shell is chalcedonic white and translucent, and below which it is transparent: apex subacute: spire much arcuated: whorls ten, moderately convex, with a distinct suture: aperture small, ovate, subeffuse: labrum much advanced along the middle. It may be a **STYLIFER**. Mean divergence about 20°; length .08 inch; breadth .03 inch; length of spire .06 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

We found 1 mature and 1 young specimen.

291. **Eulima recta.** Nov. sp.

Shell long, ovate conic: chalcedonic white, with a more opaque and another less opaque spiral band at the upper part of the whorls; with two minute delicate brown spots on the labrum, and above with several similar pairs of spots at the stages of growth: smooth and shining, with a few very faint transverse striae marking stages of growth: apex very acute: spire with the axis straight, with the outlines nearly rectilinear: whorls eleven, subplanulate, with the suture very indistinct; last whorl long, with the periphery very regularly rounded: aperture narrow and very acute above: labrum sharp, retreating anteriorly: columella stout, nearly straight.

Mean divergence about  $21^{\circ}$ ; length .41 inch; breadth .1 inch; length of spire .285 inch.

*Station.*—Unknown.

*Habitat.*—Taboga; C. B. A.!

5 specimens were collected.

292. **Eulima solitaria.** Nov. sp.

Shell long, ovate conic: chalcedonic white, with a brownish tinge above the middle of the spire: smooth and shining: apex acute: spire with the axis nearly straight, with the outlines nearly rectilinear: whorls eleven, planulate, with the suture very indistinct: last whorl with the periphery very regularly rounded: aperture ovate, acute above: labrum sharp, much advanced along the middle into an elegantly curved edge: columella stout, slightly curved. This may be a *Scylifer*.

Mean divergence about  $23^{\circ}$ ; length .19 inch; breadth .055 inch; length of spire .14 inch.

*Station.*—On *Holothuriae*.

The small species of *Holothuria*, which is very common at Panama and at Taboga, did not furnish any specimens. A larger species, which is more rare, afforded one shell.

*Habitat.*—Taboga; C. B. A.!

Family—TORNATELLIDÆ.<sup>1</sup>293. **Pyramidella.** Sp. indet.

A snow white shell, of which 1 specimen was found near Panama. It is probably a young shell, having only eight whorls.

294. **Pyramidella conica.** Nov. sp.

Shell long, regularly conic: white on the upper whorls, dark brown on the others, with a pale spiral line just above the suture: surface smooth and shining: apex very acute: spire with the outlines rectilinear: whorls fourteen, flat, with the suture in a narrow deep groove: last whorl sharply angulated at the periphery: aperture oblique: labrum thin: columella with three plaits, of which the one is lamelliform, and the other two are very small.

Mean divergence, about  $23^{\circ}$ ; length .52 inch; breadth .175 inch; length of spire .38 inch.

This species is remarkable for the exact conical form of the spire.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

1 specimen was found.

## Family—NERITIDÆ.

**NATICA.**—We are deterred from the description of any indeterminate species in this genus, because several species, which belong to the same zoological province, are known to us only by brief descriptions. Even the species which was obtained most plentifully, we have not been able to determine: yet from its abundance, it must be well known. Monographs of *Natica* and *Nerita* are now greatly to be desired.

The success with which M. Recluz has devoted himself to this and to the allied genera is well known. By the thorough

exploration of a limited field, those who have but little leisure from other pursuits may add much to science.

### 295. *Natica Chemnitzii*.

#### *Synonymy.*

The synonymy of this species was overlooked until too late to be completed. With the partial data now before us, it appears to be Pfeiffer's *N. Chemnitzii*, which, and *N. unifasciata* Lam., and *N. lurida* Phil., were included by Koch (Zeitschr. für Malak. 1844. p. 154) in the Chemnitzian species *N. maroccana*, the *N. marochiensis* of Gmelin, not of Lamarck. Probably it is the *N. maroccana* of Menke in his catalogue of Mazatlan shells, in Zeitschr. für Malak. 1847, p. 179.

*Station*.—On soft mud near low water mark.

*Habitat*.—Mazatlan; Melchers! Menke.

Guaymas; Lt. Green! Mus. Essex Inst.: also Gould MSS.

Panama; C. B. A.!

We collected 60 specimens at the bottom of the beach next east of Panama.

### 296. *Natica lurida*!

#### *Synonymy.*

*Natica lurida* (!) Phil. in Küst. Conch. Cab.

*Station*.—Unknown.

*Habitat*.—Taboga; C. B. A.!

8 specimens were collected.

### 297. *Natica otis*.

#### *Synonymy.*

<i>Natica otis</i> Brod. and Sowb. in Zool. Journ. IV. 372.	1829.
—— — Gray in Zool. Beech. Voy. pl. 34. f. 13.	1839.
—— — Küst. Conch. Cab. pl. 9. f. 4.	1850.

*Station*.—This beautiful species was found crawling on a sand beach, a little below half tide level. Like its congeners, it crawled half buried in the sand, leaving a furrow behind.

*Habitat*.—Mazatlan; Broderip and Sowerby: also Gray.

Mazatlan; Jay.

Taboga; C. B. A.!

11 specimens, mostly rather small, were taken on the north side of a sand beach, which, except at high water, joins Taboga to a small island on its northeast side. The specimens had corneous opercula, but unfortunately these were destroyed by the rats, which entered one of the boxes on their passage around Cape Horn.

#### 298. *Natica Salangonensis*?

##### *Synonymy.*

*Natica Salangonensis* (?) Recl. in Proc. Zool. Soc. Lond. p. 211. Dec. 1843.

*Station*.—Sandy mud; Cuming! Recluz. One of our specimens was taken alive in sandy mud between half tide and low water mark.

*Habitat*.—Salango; Cuming! Recluz.

Panama; C. B. A.!

10 specimens were collected.

#### 299. *Natica Souleyetiana*.

##### *Synonymy.*

*Natica Souleyetiana* Recl. in Petit. Journ. Conch. I. 385.

pl. 14. f. 8. - - - - - Dec. 1850.

*Station*.—Unknown.

*Habitat*.—Pacific Ocean? Recl.

Panama; C. B. A.!

1 mature and 3 young specimens were found.



300. *Natica virginea* ?*Synonymy.*

*Natica virginea* (?) Recl. in Petit. Journ. Conch. I. 388.

pl. 12. f. 6. - - - - - Dec. 1850.

The description and figure by M. Recluz, accurately represent a small specimen of our shells, except that the very minute crowded spiral striæ are not mentioned. The outline is too regularly rounded to correspond well with the description of *N. Panamaënsis* Recl. Our largest specimen is 1.75 inch long, and 1.4 inch wide.

*Station.*—Unknown.

*Habitat.*—Realejos : Recluz.

Panama ; C. B. A. !

We collected 40 specimens, all of which were occupied by hermit crabs.

301. *Natica* ———. Sp. indet. *a*.

*Station.*—In wet sand, from half tide to low water mark. The tracks of this species were abundant on the beach, and led to the discovery of numerous living specimens.

*Habitat.*—Panama ; C. B. A. !

We collected 200 specimens, mostly on the beach one mile west of the city.

302. *Natica* ———. Sp. indet. *b*.

Two specimens of this species were sent to me by M. Petit as *N. cora* Orb. But the figures of that species in Orbigny's Voy. Amer. Merid. and in Küst. Conch. Cab. represent a very different shell with the form (extraordinary in this genus) of a compressed cylinder ; but our shells and M. Petit's have a well curved outline. It is a white and very solid but small species of the mammillate group.

*Station*.—In wet sand.

*Habitat*.—Callao; Petit in sched.

Taboga; C. B. A.!

We found only 2 specimens.

303. **Natica** ———. Sp. indet. c.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

We obtained only 1 imperfect specimen. It may possibly be a variety of *N. Elenæ* Recl. It scarcely differs from *N. Haneti* Recl. except in the absence of spiral striæ (which a better specimen might exhibit), and in the continuity of the transverse impressed lines across the last whorl.

**NERITA**.—In this genus we found an incredible profusion of individuals, all of which belong to only two species.

304. **Nerita scabricosta.**

*Synonymy.*

<i>Nerita scabricosta</i>	Lam. (non Delessert) An. sans Vert. VI.	
	Pt. 2. p. 194. No. 14.	Apr. 1822.
— <i>ornata</i>	Sowb. Gen. pl. 4. f. 4.	1824.
— ———	Wood Ind. Test. Supp. pl. 8. f. 4.	1828.
— <i>scabricosta</i>	Lam. An. sans Vert. VIII. 608. No. 14.	
	(Desh. Ed.) - - -	1838.
— <i>Deshayesii</i>	Recl. in Rev. Zool. (var.)	Apr. 1841.
— <i>ornata</i>	Reeve Conch. Syst. pl. 202. f. 4.	1842.
— ———	Phil. Abbild. I. p. 1. pl. 1. f. 2. 3.	Jan. 1844.
— <i>scabricosta</i>	Lam. An. sans Vert. III. Pt. 2. 486. No. 14.	
	(Desh. ed. tert.) - - -	1844.
— <i>multiugis</i>	Menke in Zeitsch. Mal. p. 179.	Dec. 1847.
— ———	Reeve Elem. Conch. pl. 16. f. 86.	
— <i>scabricosta</i>	Recl. in Petit. Journ. Conch. I. 287. 410.	
	pl. 11. f. 2. - - -	Sep. 1850.

By some mistake *N. costata* appears to have been figured in Deless. Rec. for this Lamarckian species.

Most of our specimens are of a uniform jet black color, with the exception of the eroded spire. Some are sparingly mottled with cream colored spots, and a few specimens have some small bright red spots on or near the labrum. Several are elegantly banded with narrow or broad spiral stripes of cream or orange colors. The young are more or less profusely mottled with white, grey, and greyish black.

*Station*.—On rocks between high water and three-quarter tide levels. They are especially disposed to collect in the crevices of rocks. The young are commonly seen crawling above high water mark, where the rocks and stones are wet with spray.

*Habitat*.—Unknown; Lamarck: also Wood.

Real Llejos; Sowerby: also Recluz.

California; Philippi.

Mazatlan; Melchers! Menke.

I. of Timor; Recluz.

West Coast of South America; Petit.

Panama; Jay.

Panama and Taboga; C. B. A.!

We collected 400 specimens on the reef.

Probably the statement of habitat (I. of Timor,) by Recluz is erroneous. It was taken from the label of the Lamarckian specimen (long supposed to be unique) in the Massena Collection.

305. *Nerita* ———. Sp. indet. *a*.

This may be *M. Bernhardt* Recl., which is said to inhabit Panama, but we have not seen the description of that species.

*Station*.—On rocks and stones from half tide level to the low water mark of neap tides.

*Habitat*.—Panama; C. B. A.!

We collected 2,800 specimens.

306. **Neritina Guayaquilensis.***Synonymy.**Neritina Guayaquilensis* Sowb. Thes. Conch. p. 520.

No. 44. pl. 114. f. 177. - - 1849.

This may, according to Recluz, be identical with *N. intermedia* Sowb. It is certainly identical with shells which have been distributed by Mr. Cuming and by Mr. Petit under the latter name. Mr. Sowerby's figures, however, seem to represent two species.

*Station.*—This shell was found a little above the highest tides, among sticks and leaves, in a muddy place overflowed by fresh water.

*Habitat.*—Real Llejos, Guayaquil; Cuming! Sowerby.

Panama; C. B. A.!

Two miles east of Panama we collected 90 specimens in various stages of growth.

307. **Neritina picta.***Synonymy.**Neritina picta* (non Hæning) Sowb. in Proc. Zool. Soc.

Lond. p. 201. - - - - Dec. 1832.

——— ——— Desh. in Lam. An. sans Vert. VIII. 588.

No. 40. - - - - 1838.

——— ——— Sowb. Conch. Ill. No. 35. pl. 86. f. 1. 1841.

——— ——— Desh. in Lam. An. sans Vert. III. Pt. 2.

p. 479. No. 40. (Ed. tert.) - - - 1844.

——— ——— Thes. Conch. p. 530. pl. 116. f. 267-9. 1849.

*Station.*—On a mud bank partially overflowed with fresh water; Cuming! Sowerby; "Dans les eaux douces; Cuming!" Deshayes. On sticks and stones, in a grove of trees, a little above half-tide level: also in dirty places on rocks at or a little below half-tide level. According to our observations it is strictly marine.

*Habitat.*—Panama; Cuming! Sowerby.

Panama; Recluz: also Jay.

San Miguel; Lt. Green! Mus. Essex Inst.

Panama; C. B. A.!

290 specimens were collected. The specimens which Lieut. Green collected are of extraordinary size.

Family—AURICULIDÆ.

308. **Pedipes angulata.** Nov. sp.

Shell ovate globose: dark brownish red, white in the aperture: solid; with crowded wrinkled unequal raised spiral lines, which are much finer on the upper part of the whorls, and which on the middle of the whorls are larger, and are disposed with one or two smaller lines between the larger lines: apex subacute: spire with the outlines somewhat curvilinear; whorls a little more than four, very angular, concave above the angle, imbricately appressed at the suture; last whorl large and ventricose, subangular below the middle: aperture subelliptical: labrum very sharp, sinuated by the angle on the whorls, a little within much thickened by a white callus, which is interrupted at the angle, and next below it, is developed into a long tooth: columella expanded with a broad flat surface, with two acute transverse plaits, of which the lower one is smaller: labium with a very large lamelliform spiral plait above the columella: umbilicus wanting.

Mean divergence about  $90^{\circ}$ ; length .25 inch; breadth .19 inch; length of spire .1 inch.

*Station.*—Under stones at high water mark.

*Habitat.*—Panama; C. B. A.!

We collected 90 specimens at the foot of the sea wall at Panama. This and the two species of *Truncatella* were found only in one place less than two yards in diameter.

Mr. Cuming obtained at Iquiqui a very small species of *Pedipes*, which has not been described. We believe that these two are the only known species in this zoological province.

**AURICULA.**—Eight species of this genus were found, and two of these occurred abundantly; but we have been able to determine only two of the less common species. The number of known species in the genus is very considerable, yet very few appear to be known which belong to the same zoological province in which Panama is situated. Two rather large species were collected by Mr. Cuming in West Columbia, and were described by M. Petit in the Proc. Zool. Soc. Lond. 1842.

309. **Auricula acuta.**

*Synonymy.*

<i>Auricula acuta</i>	Orb. in Guerin Mag. Zool. p. 23.	1835.
—————	Orb. Voy. Amer. Merid. Moll. p. 326. pl. 42.	
	f. 4-6. - - - - -	1846.
<i>Marinula Recluziana</i>	Cuming in sched.	1852.

*Station.*—Near brackish water; M. Fontaine! Orbigny.  
Under stones near high water mark.

*Habitat.*—Near Guayaquil; M. Fontaine! Orbigny.

West Columbia; Cuming! in sched.

Panama: C. B. A.!

Only 1 mature and 2 young specimens were obtained.

310. **Auricula concinna.** Nov. sp.

Shell ellipsoidal: blackish brown, paler on the convexity of the last whorl, with a yellowish white spiral band on the last whorl issuing from beneath the suture; with the plaits and callus in the aperture white: smooth and shining: apex acute: spire with the outlines very curvilinear: whorls five, convex, imbricately appressed, with the suture moderately impressed; last whorl long: aperture narrow and very acute above, much contracted by the plaits: labrum sharp, in the lower part much thickened within by a broad thick deposit: plaits three, of which the lower one is very oblique, and the upper one is very large,

concave on the lower side, and on the upper side extended to the summit of the aperture with a transversely ridged surface.

Mean divergence about  $80^{\circ}$ ; length .32 inch; breadth .2 inch; length of spire .09 inch.

*Station*.—Our specimens were found mostly on the short suckers, which were growing up thickly beneath the mangroves, near high water mark.

*Habitat*.—Panama; C. B. A.!

We collected 74 specimens two and one-half miles east of Panama.

311. ***Auricula infrequens***. Nov. sp.

Shell ellipsoidal: brown, with a pale ill-defined spiral band a little below the suture: with fine striæ of growth: apex acute: spire with the outlines moderately curvilinear: whorls six, obtusely shouldered, with a deep suture; last whorl compressed: aperture subelliptical, rather wide: labrum very thin: with two plates, of which one is at the anterior part of the aperture and is oblique, and the other is transverse and is at the middle.

Mean divergence about  $80^{\circ}$ ; length .23 inch; breadth .15 inch; length of spire .1 inch.

*Station*.—Under stones, near high water mark.

*Habitat*.—Panama; C. B. A.!

We collected 6 specimens, in company with *Pedipes angulata*, at the base of the sea wall of Panama.

312. ***Auricula Panamensis***. Nov. sp.

Shell long ovate: blackish red throughout except that the plaits are white: smooth and shining, with a few microscopic spiral striæ near the apex: apex acute: spire with the outlines very curvilinear over the middle whorls, and nearly rectilinear on the lower whorls: whorls eight, convex, imbricately appressed;

upper part of the lower whorls compressed; last whorl sub-angular next below the compressed part: aperture rather long, very acute above: labrum moderately thickened but not reflected: with three plaits on the left side, of which the middle one is larger and the lower one is the least; sometimes with a small toothlike plait on the right side.

The general form varies, as will be seen in the following dimensions of two specimens, the first number expressing the mean divergence, the second the length, the third the breadth, and the fourth the length of the spire:—

50°; .44 inch; .17 inch; .23 inch.

65°; .37 " ; .2 " ; .13 "

*Station*.—Under stones, at high water mark; or crawling over wet stones.

*Habitat*.—Panama and Taboga; C. B. A.!

650 specimens were collected near the sea wall of Panama, where the species was most abundant.

### 313. *Auricula stagnalis*.

#### *Synonymy*.

- |                           |  |                         |
|---------------------------|--|-------------------------|
| <i>Auricula stagnalis</i> | Orb. in Guerin Mag. Zool. Synop.                         |                         |
| —————                     | p. 23.*  | - - - - - July 1835.    |
| —————                     | Reeve Conch. Syst. pl. 187. f. 9. ( <i>too narrow</i> .) | 1842.                   |
| —————                     | Orb. Voy. Am. Mer. p. 325. pl. 42. f. 7, 8.              | 1846.                   |
| ————— <i>papillifera</i>  | Küst. p. 25.   | } pl. 3. f. 9, 10, 10*. |
| ————— <i>stagnalis</i>    | Küst. p. 70.   |                         |

*Station*.—In a marsh, and even in stagnant fresh water; M. Fontaine! Orbigny.

Our specimens were found under a heap of stones just above high water mark.

\* The vol. of the Mag. is not paged continuously, nor are the new species of Mollusca, which are described by D'Orbigny, enumerated in the Table Methodique. Küster appears to be in error when he ascribes the authorship of this article to M. Petit.



*Habitat*.—Guayaquil; M. Fontaine! Orbigny.  
West Columbia; Cuming! Küster.  
I. of Tumaca; Cuming! in sched.  
Panama; C. B. A.!

At the base of the sea wall of the city we collected 36 specimens in various stages of growth. They are rather more robust than the species is represented in the figures above cited.

314. ***Auricula Tabogensis*. Nov. sp.**

Shell obovate: very dark brownish red, more or less rufous on the columella, usually white on the plaits and callus within: smooth and shining, with some fine spiral striæ on the upper whorls: apex acute: spire with the outlines very curvilinear: whorls ten, imbricately appressed, with a distinct suture: last whorl large: aperture long and narrow, in the right side mostly covered by a transversely ridged callus: with three plaits on the left side, of which the upper one is a little larger, and the two lower are separated by a sinus.

Mean divergence about  $100^{\circ}$ ; length .59 inch; breadth .36 inch; length of spire .15 inch.

Two specimens of *A. fusca* Phil., which we have received from M. Petit, are more angular in the upper part of the whorls, and have the callus within the labrum more finely and closely ridged. *A. fusca*, as figured by Küster, more robust and less pyriform than our shell. According to M. Petit's label, *A. fusca* occurs at the Marquesas, and Küster mentions the Sandwich Islands as its habitat. In outline our shell resembles *A. pyriformis* Petit (West Columbia, Cuming!), but within the aperture there is no resemblance.

*Station*.—On and under stones and rocks at high water mark.

*Habitat*.—Taboga and Panama; C. B. A.!

800 specimens were collected.

315. **Auricula trilineata.** Nov. sp.

Shell obovate: dark brownish red, with three revolving distant white lines on the last whorl, of which the anterior line is not so well defined: rufous on the columella: with irregular striæ of growth: apex obtuse? spire very small, with the outlines curvilinear: whorls —,\* very narrow, imbricately appressed, with the suture distinct: last whorl very large, convolute: aperture very long, narrow: labrum not sharp, with a deposit over the whole visible interior, which is transversely plaited: at the end of the columella with a twisted plait, separated by a sinus from a large transverse plait, above which are four small approximate transverse plaits.

Mean divergence about  $135^{\circ}$ ; length .71 inch; breadth .43 inch; length of spire .05 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

Only 1 specimen was found.

316. **Auricula** ——. Sp. indet.

*Station.*—Under stones at high water mark.

*Habitat.*—Panama; C. B. A.!

We obtained 2 specimens, which, although immature, appear distinct from the other species of *Auricula*.

Family—CYCLOSTOMIDÆ.

**TRUNCATELLA.**—We include this genus, as well as *Pedipes* and *Auricula*, in this paper, because they are maritime in their habits. Their geographical distribution, corresponding with that of the marine genera, is entirely different from that of the terrestrial molluscs.

\* In our unique specimen the suture of the upper whorls is obliterated by erosion. Probably the number of whorls is six or seven.

317. **Truncatella Bairdiana.** Nov. sp.

Shell cylindric: of a rich amber color: with rather small crowded ribs, which are obsolete behind the labrum, less prominent on the convexity of the whorls, well developed anteriorly, in number about twenty-four on the penult whorl: apex acute, truncate with the loss of four whorls: spire with the outlines slightly curvilinear; whorls nearly four after truncation, convex, with a well impressed suture: aperture ovate, slightly effuse above: labrum advanced along the middle, reflected, double: labium with a thick deposit, continuous with the labrum.

Mean divergence about  $22^{\circ}$ , being considerably less in the lower whorls and more above; length after truncation, .21 inch; breadth .075 inch; length of spire .15 inch.

This species must resemble *T. scalariformis* Reeve from the island of Annaa; but that shell is figured with five whorls after truncation, in color it is described as "luteola," and the labrum is said to be sharp and simple.

*Station.*—Under a heap of stones at the high water mark of spring tides.

*Habitat.*—Panama; C. B. A.!

400 specimens were collected at the bottom of the sea wall of Panama.

One specimen has come to maturity without the loss of the apex, which, however, is white and cretaceous from partial decay.

We dedicate this species to Professor S. F. Baird, whose name is so well known to Herpetologists.

318. **Truncatella (??) dubiosa.** Nov. sp.

Shell ovate conic: translucent, deep yellowish brown: thin, smooth, and shining: apex subacute: spire with the outlines moderately curvilinear: whorls six, convex, with a well

impressed suture; last whorl rather short and subangular, but ventricose: aperture broadly ovate: labrum thin: labium a little reflected below, above interrupted by the penult whorl.

Mean divergence about  $45^{\circ}$ ; length .083 inch; breadth .055 inch; length of spire .045 inch.

Operculum corneous.

*Station*.—With *Truncatella Bairdiana*.

*Habitat*.—Panama; C. B. A.!

550 specimens were collected.

This species cannot properly be referred to *Truncatella*. The apex is not truncated; the operculum is horny; and the general form and texture indicate a different genus. In form it approximates to *T. fusca*, *T. littorea*, &c., which are not *Truncatellæ*, but which probably belong to *Bembicium*. From the habits of our species, it may be inferred to be an air-breathing mollusc, while the characters of the shell are very different from those of *Bembicium*. The shell appears too deficient in characters suitable for generic distinction, and we refrain from proposing a new genus until the soft parts shall be known.

#### Family—BULLIDÆ.

##### 319. **Bulla (Tornatina) infrequens.** Nov. sp.

Shell cylindric, not compressed about the middle: white: smooth: apex papillary, very minute and prominent: spire moderately elevated, convex: whorls four and one-half, acutely shouldered, with a deeply channeled suture: aperture long and narrow, anteriorly rounded: labrum very thin, much advanced along the middle: columella terminating in a very robust spiral plait.

Mean divergence about  $130^{\circ}$ ; length .28 inch; breadth .11 inch; length of spire .03 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found.

320. ***Bulla (Cylichna) luticola***. Nov. sp.

Shell subcylindric, wider anteriorly: pale horn color, sub-transparent: with the striæ of growth very minute: apex in a deep narrow umbilicus, which is partly covered by the upper part of the labrum: last whorl compressed around the middle: aperture rising higher than the umbilicus, linear above, suborbicular below: labrum very thin, much advanced along the middle: columella thickened with a callus: anterior umbilical region indented, partly covered with a deposit.

Length .2 inch; breadth .095 inch.

*Station*.—This species was found crawling on liquid mud, near low water mark, at the bottom of a steep sand beach.

*Habitat*.—Panama; C. B. A.!

28 specimens were collected half a mile east of Panama.

321. ***Bulla punctulata***.

*Synonymy*.

<i>Bulla punctata</i>	Ad. in Sowb. Thes. Conch. p. 577. No. 53.	
	pl. 123. f. 77. - - - -	1849.
— <i>punctulata</i>	Ad. in Sowb. Thes. Conch. Index.	1849.

*Station*.—Sandy mud, 10 fathoms; Cuming! A. Adams.

*Habitat*.—Panama; Cuming! A. Adams.

Acapulco; E. Jewett! Gould MSS.

Taboga; C. B. A.!

25 specimens were found in various states of preservation.

322. ***Bulla*** ——. Sp. indet.

Another species is represented by 1 imperfect specimen.

## Family—VERMETIDÆ.

323. **Vermetus glomeratus?***Synonymy.*

† <i>Serpula glomerata</i>	Var. <i>b.</i> (alt. excl.) Lam. An. sans	
	Vert. V. 363. No. 6.	July 1818.
—————	Var. <i>b.</i> (alt. excl.) Lam. An. sans	
	Vert. V. 619. No. 6. (Desh. ed.)	1838.
<i>Vermetus glomeratus</i>	Rousseau in Chenu. Ill. Conch. pl. 2. f. 2.	1843.
————— <i>centiquadrus?</i>	Val. Voy. Venus. Moll. pl. 11. f. 1.	1846.

*Station.*—Attached by a small part of the spiral portion of the shells to rocks and stones near the low water mark of neap tides.

*Habitat.*—Mazatlan; Melchers! Menke.

Panama; C. B. A.!

We collected 25 specimens on the reef.

324. **Vermetus Panamensis.***Synonymy.*

*Vermetus Panamensis* Rousseau in Chenu. Ill. Conch. pl. 5. f. 1. 1843.

*Station.*—In the same situations as *V. glomeratus*, attached on one side of all the whorls.

*Habitat.*—Panama; C. B. A.!

10 specimens were collected.

Of these two species of *Vermetus*, a much larger number of specimens might have been collected, with some additional labor in carefully detaching them from the rocks.

## Family—HALIOTIDÆ.

325. **Stomatella inflata.** Nov. sp.

Shell very obliquely elliptical: white, thick and opaque anteriorly, above thinner and translucent: with very fine irre-

gular striæ of growth; without spiral striæ: apex minute, obtuse, prominent: whorls two, very convex, with a well impressed suture; last whorl very oblique, much inflated and very convex: aperture contracted, yet exhibiting the spiral columella to the apex; columellar side of the aperture abruptly arcuated.

Length obliquely .45 inch; breadth obliquely .31 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found.

Family—CALYPTRÆIDÆ.

326. **Hipponyx** ——. 'Sp. indet.

We found of this species only 2 small specimens, which probably are immature. The spire has more than two whorls. They may be the young of *Hipponyx subrufa* Sowb. Lam.? The Lamarckian *Pileopsis subrufa* is probably the Caribbean species, of which Mr. Sowerby's species is the Pacific analogue.

327. **Hipponyx barbata** ?

*Synonymy*.

*Hipponyx barbata* ? Sowb. in Proc. Zool. Soc. Lond. p. 5. Jan. 1835.

————— ? Sowb. Thes. Conch. p. 369. No. 1. pl. 73. f.

26, 27. - - - - - 1846.

Our shells correspond very nearly to the description and figures by Sowerby. Yet they may be distinct. It will be seen that they belong to a distinct zoological province. Our specimens also resemble *Pileopsis pilosus* Desh. in Guer. May 1832, pl. 19.

*Station*.—On stones and shells near low water mark.

*Habitat*.—Ad Insulas Maris Pacifici. Found on coral reefs around Toobouai, one of the Society Islands; Cuming! Sowerby.

Panama; C. B. A.!

12 specimens were collected.

### 328. **Hipponyx Panamensis.**

#### *Synonymy.*

*Hipponyx mitrula* Sowb. (non Lam.) in Proc. Zool. Soc. Lond.

p. 5. - - - - - Jan. 1835.

————— Sowb. (non Lam.) Thes. in Conch. p. 369. No.

2. pl. 73. f. 18-20. - - - - - 1846.

We propose this name for a shell, which Mr. Sowerby seems to have confounded with *H. mitrula* Lam. The Lamarckian shell is the Caribbean species, which has a curved apex that is sometimes much elongated, "apice adunco" Lam. The Panama shell is obliquely conic, with the apex moderately prominent. The concentric laminæ are more numerous and the radiating striæ on them are more deeply impressed than in the Caribbean shell. This species is thick and solid.

Length .67 inch; breadth .7 inch; height .37 inch.

A dead specimen of *Cardita affinis* has on one valve 4 rather small individuals. The attached valves are rather thin, and have been more or less perforated, from within the *Cardita*, by some boring animal. Around the perforations there is a thicker deposit, which fills up some of them.

*Station.*—On stones in 17 fathoms water, among coarse sand; Cuming! Sowerby. Our specimens were found on stones and shells near low water mark.

*Habitat.*—Lobos I.; Cuming! Sowerby.

Panama; C. B. A.!

14 specimens were collected.

### 329. **Hipponyx radiata.**

#### *Synonymy.*

*Hipponyx radiata* Sowb. in Proc. Zool. Soc. Lond. p. 5. Jan. 1835

————— Sowb. Thes. Conch. p. 370. No. 4. pl. 73. f. 24, 25. 1846



*Station*.—Attached to rocks; Cuming! Sowerby. Our specimens were found attached to stones near low water mark.

*Habitat*.—Panama and the Gallapago Is.; Cuming! Sowerby.  
Panama; C. B. A.!

16 specimens were collected.

330. ***Calyptræa aberrans*. Nov. sp.**

Shell irregularly, somewhat concave externally: papyraceous, pearly, with fine irregular striæ of growth: apex very minute, subterminal: the cup in our unique specimen is probably imperfect: what remains consists of a very thin, deeply concave, narrow lamina, transversely attached under the apex of the shell. In texture this shell much resembles a valve of an *Anomia*.

Length .7 inch; breadth .59 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

Only 1 specimen was found.

331. ***Calyptræa (Syphopatella) aspersa*. Nov. sp.**

Shell conic: thin: dingy or brownish white, irregularly sprinkled with many reddish brown spots: with very short and irregular minute wrinkles: apex acute, central: lamina with the fold appressed only at the inner margin, broadly expanded, making about two thirds of a revolution: margin very thin and acute.

Diameter .55 inch; height .21 inch.

*Station*.—Under stones at low water mark.

*Habitat*.—Panama; C. B. A.!

8 specimens were found.

332. ***Calyptrea cepacea*.***Synonymy.*

<i>Calyptrea cepacea</i>	Brod. in Proc. Zool. Soc. Lond. p. 35.	May 1834.
—————	Brod. in Trans. Zool. Soc. Lond. I. 197.	
—————	pl. 27. f. 4. - - - - -	1835.
—————	Müll. Synop. Nov. Test. Viv. p. 142.	May 1836.
—————	Lam. An. sans Vert. VII. 633. No. 24.	
—————	(Desh. ed.) - - - - -	1838.
—————	Rev. Zool. Cuv. Soc.	July 1838.
—————	Lam. An. sans Vert. III. Pt. 1. p. 233.	
—————	No. 24. (Desh. ed. tert.) - - -	1841.
—————	Chenu Lec. Elem. p. 144. f. 462?	1847.

*Station*.—Adhering to dead shells, in sandy mud, at a depth of 11 fathoms; Cuming! Broderip.

Our specimens were found adhering to dead shells, at low water mark.

*Habitat*.—I. of Muerte; Cuming! Broderip: also Deshayes: also Rev. Zool.: also Müller.

Mazatlan; Melchers! Menke.

Panama; C. B. A.!

4 small specimens were found.

333. ***Calyptrea conica*.***Synonymy.*

<i>Calyptrea (Syphopatella) conica</i>	Brod. in Proc. Zool. Soc.	
—————	Lond. p. 38. - - -	May 1834.
—————	Brod. in Trans. Zool. Soc.	
—————	Lond. I. 202. pl. 27. f. 7.	1835.
—————	Müll. Synop. Nov. Test.	
—————	Viv. p. 147. - - -	May 1836.
—————	Lam. An. sans Vert. VII. 630.	
—————	No. 17. (Desh. ed.) - - -	1838.
—————	Lam. An. sans Vert. III. Pt. 1.	
—————	p. 232. No. 17. (Desh. ed. tert.)	1841.

*Station*.—Attached to shells in deep water; Cuming! Broderip.

*Habitat*.—Xipixapi and Salango; Cuming! Broderip: also Müller.

Panama; C. B. A.!

12 specimens were obtained.

### 334. *Calyptræa dentata*.

*Synonymy*.

*Calyptræa rugosa* Reeve (non Desh.) Conch. Syst. pl. 144. f. 1. 1842.  
 ——— *dentata* Menke Zeitschr. Malak. p. 185. Dec. 1847.

*Station*.—Unknown.

*Habitat*.—Mazatlan; Melchers! Menke.

Panama; C. B. A.!

8 specimens were collected.

### 335. *Calyptræa hispida*.

*Synonymy*.

*Calyptræa (Calypeopsis) hispida* Brod. in Proc. Zool. Soc.  
 ——— Lond. p. 37. - May 1834.  
 ——— Brod. in Trans. Zool. Soc. Lond.  
 ——— I. 200. pl. 27. f. 10. - 1835.  
 ——— Müll. Nov. Test. Viv. p. 144. May 1836.  
 ——— Lam. An. sans Vert. VII. 638.  
 ——— No. 36. (Desh. ed.) - 1838.  
 ——— Rev. Zool. Cuv. Soc. July 1838.  
 ——— Lam. An. sans Vert. Pt. 1. p. 233.  
 ——— No. 36. (Desh. ed. tert.) 1841.  
 ——— Chenu Lec. Elem. p. 144. f. 464. 1847.

Our specimens vary much in form and in coloring. Some are almost flat, but the cup is as deep in such as in the more conical shells: such specimens grow on a concave surface. One shell, instead of having a subcircular outline, has the outline of a very eccentric ellipse. The color of some is nearly white; of others, a deep brown; many are spotted and striped in the manner described by Mr. Broderip.

*Station*.—On dead shells, in sandy mud, at a depth of 12 fathoms; Cuming! Broderip.

Our specimens were found under stones at low water mark.

*Habitat*.—I. of Muerte; Cuming! Broderip: also Rev. Zool.; also Müller.

I. of Muerte; Deshayes; also Jay.

Panama and Taboga; C. B. A.!

20 specimens were collected.

### 336. *Calyptræa imbricata*.

#### *Synonymy*.

*Calyptræa (Calypeopsis) imbricata* Brod. in Proc. Zool. Soc.

Lond. p. 36. - - May 1834.

————— Brod. in Trans. Zool. Soc. Lond.

I. 193. pl. 27. f. 7. - - 1835.

————— Müll. Synop. Nov. Test. Viv.

p. 143. - - - May 1838.

————— Lam. An. sans Vert. VII. 636.

No. 33. (Desh. ed.) - - 1838.

————— Rev. Zool. Cuv. Soc. July 1838.

————— Hanley Conch. Book Spec.

p. 13. - - - 1842.

————— Orb. Voy. Amer. Merid. Moll.

p. 460. - - - 1843.

*Station*.—On stones in sandy mud at a depth of from 6 to 10 fathoms; Cuming! Broderip.

*Habitat*.—Panama; Cuming! Broderip: also Rev. Zool.: also Müller.

Central America; Deshayes.

Payta; Orbigny.

Panama; C. B. A.!

2 specimens were found.

As M. Deshayes mentions another habitat, it is to be regretted that the authority is not stated.

337. *Calyptræa maculata*.*Synonymy.*

<i>Calyptræa (Calypeopsis) maculata</i>	Brod. (non Quoy) in Proc.	
	Zool. Soc. Lond. p. 37.	May 1834.
————	———— Brod. in Trans. Zool. Soc.	
	Lond. L 200. pl. 27. f. 11.	1835.
— — — —	———— Müll. Synop. Nov. Test.	
	Viv. p. 145. - -	May 1836.
————	———— Lam. An. sans Vert. VII. 638.	
	No. 37. Desh. ed. -	1838.
————	———— Rev. Zool. Cuv. Soc.	July 1838.

*Station*.—In sandy mud on dead shells at a depth of 11 fathoms; Cuming! Broderip.

*Habitat*.—I. of Muerte; Cuming! Broderip: also Rev. Zool.

I. of Muerte; Deshayes.

Panama; C. B. A.!

2 specimens were found.

338. *Calyptræa planulata*. Nov. sp.

Shell flat, suborbicular: thin: pure white: with very minute radiating striæ, which are obsolete around the apex: apex subcentral, acute, slightly elevated above the plane of the shell: cup with the sides free and the corners acute, thin, curved through about 220°: margin very thin. It belongs to *Calyptræa* as restricted by Broderip.

Length .32 inch; breadth .35 inch.

*Station*.—Adhering to an oyster, a little below half tide level.

*Habitat*.—Panama; C. B. A.!

Only 1 specimen was found.

339. *Calyptræa radiata*.*Synonymy.*

<i>Calyptræa (Calypeopsis) radiata</i>	Brod. in Proc. Zool. Soc.	
	Lond. p. 36. - -	May 1834.

<i>Calyptræa radiata</i>	Brod. in Trans. Zool. Soc. Lond. I.	
	p. 198. pl. 27. f. 6. - - - -	1835.
—————	Müll. Synop. Nov. Test. Viv. p. 143.	May 1836.
—————	Lam. An. sans Vert. VII. 635. No.	
	31. (Desh. ed.) - - - -	1838.
—————	Rev. Zool. Cuv. Soc.	July 1838.
—————	Lam. An. sans Vert. III. Pt. 1. p. 234.	
	No. 31. (Desh. ed. tert.) - - -	1841.
—————	Chenu Lec. Elem. p. 144. f. 460, 461. -	1847.

*Station*.—Sandy mud on dead shells at a depth of 7 to 14 fathoms; Cuming! Broderip.

*Habitat*.—Bay of Caraccas; Cuming! Broderip: also Rev. Zool.: also Müller.  
Seas of South America; Deshayes.  
Bay of Caraccas; Jay.  
Panama; C. B. A.!

10 specimens were collected.

340. ***Calyptræa (Syphopatella) regularis.*** Nov. sp.

Shell with a circular margin, regularly conic: moderately thickened: snow white, tinged with brown about the apex: with very fine lightly impressed striæ of growth, somewhat shining: apex subacute, subcentral: lamina folded so as to form a tube about one-third of its own width, produced to the margin so as to make one complete revolution: margin acute.

Diameter 1.27 inch; height .55 inch.

*Station*.—Unknown.

*Habitat*.—Mazatlan; Lt. Green! Mus. Essex Inst.: also Gould MSS.  
Panama; C. B. A.!

3 specimens were obtained.

341. *Calyptræa umbrella*.*Synonymy.*

<i>Calyptræa umbrella</i>	Desh. in Encyc. Meth. Vers. II. 173.	
	(1st ser. pag.)	- - - 1830.
— <i>rudis</i>	Brod. in Proc. Zool. Soc. Lond. p. 35.	May 1834.
— —	Brod. in Trans. Zool. Soc. Lond. I. 196.	
	pl. 27. f. 1.	- - - 1835.
— <i>umbrella</i>	Lam. An. sans Vert. VII. 635. No. 30.	
	Desh. ed.	- - - 1838.
— —	Lam. An. sans Vert. III. Pt. 1. p. 234.	
	No. 30. (Desh. ed. tert.)	- - 1841.
— <i>rudis</i>	Rev. Zool. Cuv. Soc.	July 1838.
— ( <i>Crucibulum</i> ) <i>rudis</i>	Woodward Manual Moll.	
	p. 152. pl. 11. f. 12.	- 1851.

*Station*.—Under stones; Cuming! Broderip.

*Habitat*.—Panama and Real Llejos: Cuming! Broderip: also  
Rev. Zool.

Seas of Central America; Deshayes.

West America; Woodward.

Guayaquil; Jay.

Panama; C. B. A.!

Only 1 specimen was found.

342. *Calyptræa unguis*??

We found one immature specimen which may belong to this species.

343. *Crepidula cerithicola*. Nov. sp.

Shell ovate, convex: posteriorly whitish, sometimes with a broad ray of dark brownish red on each side of the umbo; anteriorly subtransparent, pale brownish red, with narrow dark rays of the same color; sometimes all the rays are confluent, and more rarely the entire shell is of a dark brownish red; with the septum white: smooth: apex acute, terminal and marginal, a little dextrorsal: septum slightly angulated along

the middle, with a small sinus at the left, a broad one at the middle of the edge, and none at the right side.

Length .23 inch : breadth .14 inch ; convexity .07 inch.

*Station*.—On *Cerithium irroratum*, q. v.

*Habitat*.—Taboga ; C. B. A. !

This species was not observed until after the shells arrived here. When cleaning a quantity of *C. irroratum*, 45 specimens were obtained.

### 344. *Crepidula echinus*.

#### *Synonymy*.

<i>Calyptræa</i> ( <i>Crepidatella</i> ) <i>echinus</i>	Brod. in Proc. Zool. Soc.	
—————	Lond. p. 39. - -	May 1834.
—————	Brod. in Trans. Zool. Soc.	
—————	Lond. I. 203. pl. 27. f. 1.	1835.
—————	Müll. Synop. Nov. Test.	
—————	Viv. p. 148. - -	May 1836.
<i>Crepidula</i>	————— Lam. An. sans Vert. VII.	
—————	650. No. 23. (Desh. ed.)	1838.
—————	————— Lam. An. sans Vert. III.	
	Pt. 1. p. 239, No. 23.	
	(Desh. ed. tert.) - -	1841.

*Station*.—Under stones at low water.

*Habitat*.—Lobos I. ; Cuming ! Broderip : also Müller.

Peru ; Deshayes : also Jay.

Panama ; C. B. A. !

18 specimens were obtained.

### 345. *Crepidula excavata*.

#### *Synonymy*.

<i>Calyptræa</i> ( <i>Crepidula</i> ) <i>excavata</i>	Brod. in Proc. Zool. Soc.	
—————	• Lond. p. 40. - -	May 1834.
—————	————— Brod. in Trans. Zool. Soc.	
	Lond. I. 205. pl. 29. f. 7.	1835.



<i>Calyptraea</i> ( <i>Crepidula</i> ) <i>excavata</i>	Müll. Synop. Nov. Test.	
	Viv. p. 150. - -	May 1836.
<i>Crepidula</i>	——— Lam. An. sans Vert. VII.	
	649. No. 19. (Desh. ed.)	1838.
———	——— Lam. An. sans Vert. III. Pt. 1.	
	p. 239. No. 19. (Desh. ed. tert.)	1841.

*Station*.—Unknown.

*Habitat*.—Real Llejós; Cuming! Broderip.

Chili; Deshayes.

Panama; C. B. A.!

1 specimen was obtained.

In the absence of testimony, the habitat mentioned by Deshayes must be considered as doubtful.

### 346. *Crepidula hepatica*?

#### *Synonymy.*

<i>Crepidula hepatica</i>	Desh. Encyc. Meth. Vers. II. 26. (2d ser. pag.)	1830.
———	——— Lam. An. sans Vert. VII. 646. No. 12.	
	(Desh. ed.) - - - - -	1838.
———	——— Lam. An. sans Vert. III. Pt. 1. p. 238.	
	No. 12. (Desh. ed. tert.) - - -	1841.
———	——— Menke in Zeitsch. Mal. p. 184. - - -	Dec. 1847.

Our specimens have an epidermis, which is more or less lamellar or pilose. Deshayes describes the shell as having a smooth exterior surface, but Menke says “confertim distinctè porcata.” Our shells exhibit a variation in the character of the surface, which reconciles this apparent discrepancy. A variety is very convex.

*Station*.—Adhering to *Strombus Peruvianus*, q. v.; also to *Purpura tecta*, q. v.

Another specimen is on a *Conus gladiator*, and is very convex; probably in consequence of the very convex surface to which it adheres. Some specimens are longitudinally recurved but laterally very convex; conforming to the surface on which they grew.

*Habitat*.—Unknown; Deshayes.

Mazatlan; Melchers! Menke.

Mazatlan; E. Jewett! Gould MSS.

Taboga and Panama; C. B. A.!

28 specimens were collected.

According to Dr. Krauss, *C. hepatica* occurs at the Cape of Good Hope. We have several specimens, collected at the Cape by Dr. K., of his convex variety, which differs from our shells in having the septum very deeply placed, and the beak very prominent. The depressed variety figured by Dr. K. may more nearly resemble the Pacific shell, but we have no specimens for comparison. Probably, however, the Cape shells belong to a distinct species: but as the habitat of the original type was not known, and as the original description is applicable to both, we must leave this question undecided.

### 347. *Crepidula incurva*.

#### *Synonymy*.

*Calyptræa (Crepidula) incurva* Brod. in Proc. Zool. Soc.

_____	_____	Lond. p. 40. - -	May 1834.
_____	_____	Brod. in Trans. Zool. Soc.	
_____	_____	Lond. pl. 29. f. 6. -	1835.
_____	_____	Müll. Synop. Nov. Test.	
_____	_____	Viv. p. 150. - -	May 1836.
_____	_____	Orb. Voy. Amer. Merid.	
		Moll. p. 468. - -	1843.

*Station*.—On dead shells dredged from sandy mud, at a depth ranging from 6 to 10 fathoms; Cuming! Broderip.

Our specimens were found adhering to living shells at and near low water mark. Its favorite station was on the shell which we have mentioned as *Trochus* sp. indet. *b*, almost every one of which supported one or more of this *Crepidula*. *Turbo saxosus* was next in the frequency with which it furnished specimens. The species was found also on *Columbella rugosa*, *C. varia*, *Buccinum ringens*, *Purpura tecta*, *P. undulata*, *Trochus*

*Buschii*, *T. reticulatus*, &c. Frequently also they are attached one to another.

*Habitat*.—St. Elena, and Xipixapi; Cuming! Broderip.

St. Elena; Jay.

Payta; Fontaine! Orbigny.

Panama; C. B. A.!

120 specimens were collected. 2 specimens in the Mus. Amh. were sent by a German conchologist, as having come from Peru.

### 348. *Crepidula Lessonii*.

#### *Synonymy.*

<i>Calyptræa</i> ( <i>Crepidula</i> ) <i>Lessonii</i>	Broderip in Proc. Zool. Soc.	
_____	Lond. p. 39. - -	May 1834.
_____	Broderip in Trans. Zool. Soc.	
_____	Lond. I. 204. pl. 29. f. 5.	1835.
_____	Müller. Synop. Nov. Test.	
_____	Viv. p. 149. - -	May 1836.
<i>Crepidula</i>	Lam. An. sans Vert. VII.	
_____	649. No. 20. (Desh. ed.)	1838.
_____	Lam. An. sans Vert. III. Pt. 1.	
_____	p. 239. No. 20. Desh. ed. tert.	1841.

This species is remarkable for the very broad far projecting laminae, which occupy the surface. Most of our specimens are nearly or wholly destitute of the brown longitudinal lines.

*Station*.—Under stones at low water; Cuming! Broderip.

Our specimens were found in the same situation.

*Habitat*.—I. of Muerte; Cuming! Broderip: also Müller.

I. of Muerte; Deshayes: also Jay.

Panama; C. B. A.!

80 specimens were collected on the reef.

### 349. *Crepidula squama*.

#### *Synonymy.*

<i>Calyptræa</i> ( <i>Crepidula</i> ) <i>squama</i>	Broderip in Proc. Zool. Soc. Lond.	
_____	p. 40. - - -	May 1834.

<i>Calyptraea</i> ( <i>Crepidula</i> ) <i>squama</i>	Brod. in Trans. Zool. Soc. Lond. I. 205. pl. 29. f. 10. - 1835.
—————	————— Müll. Synop. Nov. Test. Viv. p. 151. - - - - May 1836.
<i>Crepidula</i>	————— Lam. An. sans Vert. VII. 648. No. 16. (Desh. ed.) - 1838.
—————	————— Lam. An. sans Vert. III. Pt. 1. p. 239. No. 16. (Desh. ed. tert.) 1841.

The specimens vary much in color: the normal arrangement is with dark reddish brown rays on a whitish ground; in some shells the rays are few and faint; in others they are crowded or even confluent. The surface is incurved or excurved according to the figure of the spot on which they grow.

*Station*.—Under stones and in dead shells near low water mark.

*Habitat*.—Panama; Cuming! Broderip: also Müller.

Panama; Deshayes: also Jay.

Panama; C. B. A.!

35 specimens were collected.

### 350. *Crepidula unguiformis*.

#### *Synonymy*.

	Gualt. Test. pl. 69. f. 11. 1742.
<i>Patella crepidula</i>	Linn. Syst. Nat. p. 1257. No. 752. (Ed. 12.) 1767.
—————	Gmel. in Linn. Syst. Nat. p. 3695. No. 17. 1788.
—————	Turt. Linn. Syst. Nat. IV. 554. 1806.
—————	Broc. Foss. Subapp. II. 253. 1814.
<i>Crepidula unguiformis</i>	Lam. An. sans Vert. VI. Pt. 2. p. 25. No. 4. 1818.
————— <i>Italica</i>	Defr. Dict. des Sc. Nat. XI. 397. 1818.
————— <i>plana</i>	Say Journ. Acad. Nat. Sc. Phil. (Old Ser.) II. 226. - - - - July 1821.
————— <i>Italica</i>	Dict. Classique d'Hist. Nat. V. 54. April 1824.
————— <i>unguiformis</i>	Sowb. Gen. pl. — f. 6. 1824.
————— <i>calceolina</i>	Desh. Encyc. Meth. Vers. II. 26. No. 6. (2nd ser. pag.) - - - - 1830.
————— <i>plana</i>	Say Amer. Conch. pl. 44. 1830.
————— <i>unguiformis</i>	Brod. in Proc. Zool. Soc. Lond. p. 39. May 1834.

<i>Crepidula unguiformis</i>	Brod. in Trans. Zool. Soc. Lond. I. pl. 29. f. 4. - - - - -	1835.
_____	Müll. Syn. Nov. Test. Viv. p. 151. May	1836.
_____	Lam. An. sans Vert. VII. 643. No. 4. (Desh. ed.) - - - - -	1838.
_____	Pot. et Mich. Gal. Moll. Mus. Douai. I. 514.	1838.
_____ <i>plana</i>	Gould Invert. Mass. p. 159. f. 16.	1840.
_____ <i>unguiformis</i>	Lam. An. sans Vert. III. Pt. 1. p. 236. (Desh. ed. tert.) - - - - -	1841.
_____	Reeve Conch. Syst. pl. 143. f. 6.	1842.
_____ <i>dilatata</i>	No. 4. Orb. Voy. Amer. Merid. Moll. p. 467.	1843.
_____ <i>plana</i>	Dekay Zool. of N. Y. Moll. p. 158. pl. 7. f. 153. a. b. - - - - -	1843.

This shell is well calculated to confound the popular notion of species. We have now before us many perfect specimens from Sicily, from Massachusetts, from Jamaica, and from Panama, all of which, with the exception of the Mediterranean shells, we collected in person. They present many modifications of form dependent on progress of growth, and the positions which they occupy in dead shells. But we have in vain attempted to discover any characteristics of locality. The only approach to a local character is to be found in a few of the Panama shells, which have longitudinal rays of reddish brown, while all the other specimens are of a uniform white. So far at least as the shells are concerned, it seems necessary to admit that they all may be comprised in one species; or to maintain that individuals, which cannot be distinguished from each other, belong to different species, because it is probable that they descended from distinct original stocks. But if we admit that each species in the animal kingdom was introduced by the creation of many original stocks, then the fact before us becomes intelligible and very uncommon in only one particular, viz: that the original individuals of a single species were created in very distant zoological provinces.

On the opinion that the North American *C. plana* Say is identical with the Mediterranean *C. unguiformis* Lam., Dr. Gould remarks as follows:—

“In this opinion I have the concurrence of Mr. Sowerby.

Deshayes observes that he can hardly think that the shell figured as *Calyptrea unguiformis* by Broderip in 'Trans. Zool. Soc.' I. pl. 29, f. 4, is the shell of Linnæus. He says the shell of Linnæus is distinguished by a profound notch at one extremity of the partition, and a feebler one at the other; that the shell described by Mr. Say as *Crepidula plana* wants this notch, and is the shell figured by Broderip. Now it so happens that the only specimen which I am certain is entire, has this notch precisely as described, and the tooth-like process which separates the large notch from the rest of the margin is such as would be likely to be broken in almost every instance. This fact leads me to suppose that all three of the shells in question are of the same species, and should be called *C. unguiformis*."

*Station.*—Dans l'intérieur des coquilles univalves abandonnées; Defrance. Espèce qui a l'habitude de se mettre à l'abri dans les coquilles abandonnées; Deshayes. Inside of dead shells of *Ranella vexillum*, *R. cœlata*, &c. \* \* \* Dredged from sandy mud at a depth ranging from 4 to 10 fathoms; Cuming! Broderip. In the aperture of other shells; Gould! In dead shells, whether or not the shells are occupied by Paguridæ. We have received the shell from Sicily in the aperture of a *Murex trunculus*. In Massachusetts we have found it in the aperture of *Natica duplicata*, of *Pyrula canaliculata*, *P. carica*; on the inside of *Pecten concentricus*, and of the crustacean *Limulus polyphemus*, &c. In Jamaica, we found it in *Murex brevifrons*, *M. funiculatus* (?), *Fasciolaria tulipa*, *Pyrula melongena*, *Turbo crenulatus*, &c. In Panama we found it in *Murex radix*, *Fasciolaria granosa*, *Turbo saxosus*, *Natica* sp. indet., &c. It occurs more frequently near half tide level, but is not very narrowly limited in its vertical range.

Dr. Gould and D'Orbigny both consider the peculiarities of this shell as the effect of its position; and Orbigny ascribes the flattened form to the pressure of the organs of hermit crabs, one of which usually occupies the same habitation. If, however,

these writers are correct, we ought to find the characters always graduating into those of other species, according to the position of the shell.

*Habitat*.—Ilva; Gualteri.

Seas of Barbary; Linnæus: also Gmelin: also Lamarck.

In nearly all the Mediterranean; Deshayes.

Mediterranean; Jay.

Bays of Tunis and Algiers; McAndrew!

Sicily; C. B. A.

Mediterranean and Seas of Senegal; Potiez and Michaud.

Maine; Mighels!

Massachusetts; Gould! also C. B. A.!

New York harbor; C. M. Wheatley!

New Jersey; Say.

Maryland, Carolina, Georgia, and East Florida; Say!

Jamaica; C. B. A.!

I. of Chilœ and Panama; Cuming! Broderip; also Müller.

Panama; C. B. A.!

In the United States, Maine appears to be the northern limit of the species: Dr. Mighels says, "I have never found but one individual of this species in Casco Bay [Maine]; this had located itself within the mouth of a dead *Buccinum undatum*." In Massachusetts, we have only found one specimen north of Cape Cod; this was on Chelsea Beach. But south of Cape Cod the species is common. In Jamaica, it is common in the Bay of Port Royal. At Panama we collected 35 specimens.

This species is thus found to inhabit the following distinct marine zoological provinces:—

1. The Mediterranean.

2. East side of North America, north of Cape Cod.

3. " " " " middle regions.

4. The Caribbean waters.
5. West side of America, tropical shores.
6. " " " southern temperate region.

It is also common in a fossil state.

"Fossile en Italie, en Sicilie, en Morée, à Bordeaux et à Dax, dans les faluns de la Touraine:" Deshayes.

"Fossile nel Piacentine e nel Sanese;" Brocchi.

351. **Crepidula nivea.** Nov. sp.

Shell ovate-elliptic: rather thick: within snow white: without dingy white, sometimes with a faint tinge of brown: very irregularly concentrically more or less wrinkled, with very distinct striæ of growth: apex turned more or less to the right, moderately prominent, marginal: septum longitudinally subangular, with a deep sinus at the left and a shallow one at the right: margin thick, exhibiting striæ of growth. It closely resembles *C. unguiformis*, but constantly differs in characters and station.

Length 1.4 inch; breadth 1 inch; height .4 inch.

*Station*.—Under stones, near low water mark.

*Habitat*.—Panama; C. B. A.!

45 specimens were collected on the reef.

352. **Crepidula osculans.** Nov. sp.

Shell elliptical: pale horn color, subtransparent: surface minutely decussated with numerous very small radiating and concentric ridges: apex subterminal, very prominent, not marginal, with the nuclear portion smooth, shining, transparent and slightly directed to the right: septum but little above the margin, extremely narrow or linear, extending around the posterior part of the shell: margin very thin. In some respects, this species is allied to *Pileopsis*.

Length .14 inch; breadth .1 inch; height .045 inch.



*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

Only 1 specimen of this extraordinary species was obtained.

353. ***Crepidula rostrata***. Nov. sp.

Shell very convex, irregularly elliptic: livid brown, sometimes with pale ill-defined spots: irregularly somewhat corrugated both radiately and concentrically: apex very acute and prominent, rostriform, very distant from but extending beyond the posterior margin, slightly directed to the right: septum far within the margin, planulate, usually very oblique to the plane of the aperture: margin thin, irregular.

Length .48 inch; breadth .3 inch; height .29 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

5 specimens were obtained in different stages of growth.

Family—FISSURELLIDÆ.

354. ***Fissurella æqualis***.

*Synonymy*.

<i>Fissurella æqualis</i>	Sowb. in Proc. Zool. Soc. Lond. p. 127.	Nov. 1834.
—————	Müll. Synop. Nov. Test. Viv. p. 158.	May 1836.
—————	Sowb. Conch. Ill. No. 49. pl. 76. f. 56.	1841.
—————	Reeve Conch. Icon. pl. 8. f. 55.	Dec. 1849.

*Station*.—On dead shells in from 6 to 10 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—St. Elena; Cuming! Sowerby: also Reeve.

Panama; C. B. A.!

5 specimens were obtained.

355. **Fissurella alta.** Nov. sp.

Shell subconic, high : dingy white, often more or less covered with broad ashy black rays, which may be seen through the shell : with prominent radiating ribs, of which the alternate ones are excessively developed, and intermediate small raised lines ; with many concentric ridges, which are less prominent than the larger radiating ribs, and more so than the others : summit nearer to and somewhat inclined towards the anterior extremity : fissure small, ovate-elliptic : margin pectinated by the radiating ribs.

The following are the dimensions of a very large and high shell and of another of average size :

Height .42 inch ; length .55 inch ; breadth .41 inch.

" .22 " " .42 " " .29 "

*Station*.—Unknown.

*Habitat*.—Panama ; C. B. A. !

26 specimens were obtained.

356. **Fissurella macrotrema.***Synonymy.*

*Fissurella macrotrema* Sowb. in Proc. Zool. Soc. Lond. p. 125. Nov. 1834.

————— Müll. Synop. Nov. Test. Viv. p. 155. May 1836.

————— Sowb. Conch. Ill. No. 33. pl. 74. f. 41. 1841.

————— Chenu. Ill. Conch. pl. 1. f. 14. 1843.

————— Reeve Conch. Icon. pl. 5. f. 31. Aug. 1849.

*Station*.—Under stones on the shore ; Cuming ! Sowerby.

*Habitat*.—Gallapago Is. and Real Llejos ; var's at Lobos I. and Lambeyeque, Peru ; Cuming ! Sowerby : also Müller.

Gallapago Is. ; Cuming ! Reeve.

Taboga ; C. B. A. !

We collected 5 specimens, which are somewhat narrower than the figures in Sowerby and in Reeve.

357. **Fissurella microtrema.***Synonymy.*

- Fissurella microtrema* Sowb. in Proc. Zool. Soc. Lond. p. 125. Nov. 1834.  
\_\_\_\_\_ Müll. Synop. Nov. Test. Viv. p. 156. May 1836.  
\_\_\_\_\_ Chenu Ill. Conch. pl. 1. f. 11.  
\_\_\_\_\_ Orb. Voy. Amer. Merid. Moll. p. 473. 1843.  
\_\_\_\_\_ Reeve Conch. Icon. pl. 7. f. 44. Dec. 1849.

The shells before us seem to be intermediate between this species and *F. rugosa* Sowb., as these species are figured by Sowerby and by Reeve. We are indebted to Mr. Cuming for specimens which enable us to determine the species.

*Station*.—Under stones at low water; Cuming! Reeve.

*Habitat*.—Real Llejos; Cuming! Sowerby: also Reeve.

West Columbia; Cuming! in sched.

Panama; C. B. A.!

We obtained 10 specimens in various stages of growth.

358. **Fissurella mus.***Synonymy.*

- Fissurella mus* Reeve Conch. Icon. pl. 16. f. 120. Aug. 1850.

Var. Two of our specimens differ from the type in having the fissure shorter and the region around it more elevated.

*Station*.—Unknown.

*Habitat*.—Unknown; Reeve.

Panama; C. B. A.!

8 specimens were collected.

359. **Fissurella nigropunctata.***Synonymy.*

- Fissurella nigropunctata* Sowb. in Proc. Zool. Soc. Lond. p. 125. Nov. 1834.  
\_\_\_\_\_ Müll. Synop. Nov. Test. Viv. p. 155. May 1836.

*Fissurella nigropunctata* Sowb. Conch. Ill. No. 32. pl. 75. f. 51. 1841.  
 ————— Reeve Conch. Icon. pl. 4. f. 8. Aug. 1849.

*Station*.—Under stones on the shore; Cuming! Sowerby : also Reeve.

Our specimens were found on rocks at and below half tide level. Some of them have their outlines singularly modified by the surface of the rugged rocks on which they were living.

*Habitat*.—Gallapago Is., and Lobos I.; Cuming! Sowerby : also Reeve : also Müller.

Gallapago Is.; Jay.

Taboga; C. B. A.!

We collected 95 specimens. Most of them are elongated like the figure in the Conch. Illust., and are narrower than the figure in the Conch. Icon.

### 360. *Fissurella ostrina*.

*Synonymy*.

*Fissurella ostrina* Reeve Conch. Icon. pl. 14. f. 106. Aug. 1850.

*Station*.—Unknown.

*Habitat*.—Unknown; Reeve.

Panama; C. B. A.!

3 specimens were found near Panama.

### 361. *Fissurella virescens*.

*Synonymy*.

*Fissurella virescens* Sowb. in Proc. Zool. Soc. Lond. p. 125. Nov. 1834.

————— Müll. Synop. Nov. Test. Viv. p. 154. May 1836.

————— Sowb. Conch. Illust. No. 31. pl. 73. f. 37. 1841.

————— Reeve Conch. Icon. pl. 4. f. 12. Aug. 1849.

*Station*.—In exposed situations at low water; Cuming! Sowerby. In exposed situations on rocks at low water; Cuming! Reeve.

Our specimens were found on a ledge of rather smooth rocks, between half tide and low water mark, in a place somewhat exposed to the sea.

*Habitat*.—Panama; Cuming! Sowerby: also Reeve: Müller.  
 Mazatlan; Melchers! Menke.  
 Mazatlan; Lt. Green! Mus. Essex Inst.  
 Panama; Jay.  
 Panama; C. B. A.!

We collected 142 specimens on a ledge of rocks nearly three miles east of Panama.

### 362. *Siphonaria characteristica*.

#### *Synonymy*.

*Siphonaria characteristica* Reeve in Proc. Zool. Soc. Lond. p. 49. Mar. 1842.  
 ————— Reeve Conch. Syst. pl. 138. f. 3. 1842.

*Station*.—On rocks above and below half tide level.

*Habitat*.—Bay of Panama; Cuming! Reeve.  
 Bay of Panama; Jay.  
 Taboga; C. B. A.!

70 specimens were collected.

### 363. *Siphonaria costata*.

#### *Synonymy*.

*Siphonaria costata* Sowb. in Proc. Zool. Soc. Lond. p. 6. Jan. 1835.

*Station*.—On rocks in exposed situations at low water; Cuming! Sowerby.

*Habitat*.—Guacomayo; Cuming! Sowerby.  
 Guacomayo; Jay.  
 Panama; C. B. A.!

Only 1 specimen was found.

### 364. *Siphonaria gigas*.

#### *Synonymy*.

*Siphonaria gigas* Sowb. Tank. Catal. App. p. 6. No. 808. 1825.  
 ————— Reeve Conch. Syst. pl. 138. f. 6. 1842.  
 ————— Val. Voy. Venus. Moll. pl. 12, 13. 1846.

*Station*.—On rocks above and below half tide level.

*Habitat*.—Panama ; Sowerby.

Peru ; Voyage of the Venus.

Gallapago Is. ; Jay.

Taboga ; C. B. A.

220 specimens were collected.

Nearly one half of the specimens, which we have included in this species, are intermediate between this and *S. characteristic*. There is so little constancy in the two forms, that the distinction is a source of much perplexity.

### 365. *Siphonaria maura*.

#### *Synonymy*.

*Siphonaria maura* Sowb. in Proc. Zool. Soc. Lond. p. 7. Jan. 1835.  
Reeve Elem. Conch. pl. 24. f. 144 ? 1848 !

*Station*.—On rocks ; Cuming ! Sowerby. Our specimens were found on ledges of rocks, mostly above half tide level.

*Habitat*.—Panama ; Cuming ! Sowerby.

Panama ; C. B. A. !

200 specimens were collected.

### 366. *Siphonaria pica* ?

#### *Synonymy*.

*Siphonaria pica* (?) Sowb. in Proc. Zool. Soc. Lond. p. 6. Jan. 1835.

*Station*.—On rocks in exposed situations ; Cuming ! Sowerby.

*Habitat*.—Acapulco ; Cuming ! Sowerby.

Panama ; Jay.

Panama ; C. B. A. !

3 specimens were found.

Is not Mr. Sowerby in error when he represents Mr. Cuming as having made collections at Acapulco ?

367. **Lottia patina** ?*Synonymy.*

*Acmaea patina* (?) Rathke in Esch. Zool. Atlas. Heft. V.

p. 19. pl. 24. f. 7, 8. - - - - 1833.

*Station*.—On and under stones at the low water mark of neap tides.

*Habitat*.—Mazatlan ; Lt. Green ! Mus. Essex Inst.

Panama ; C. B. A. !

34 specimens were collected on the reef.

Var. *a* has only linear pale rays on a dark olivaceous ground, and the margin is of a uniform blackish brown : the radiating striae are coarser than in the type.

368. **Lottia** ———. Sp. indet. *a*.

A small suborbicular conical thin shell.

*Station*.—Under stones near half tide level.

*Habitat*.—Panama ; C. B. A. !

45 specimens were collected.

369. **Lottia** ———. Sp. indet. *b*.

20 specimens were taken with the preceding.

370. **Lottia** ———. Sp. indet. *c*.

11 specimens of this minute species were collected at Panama.

## Family—PATELLIDÆ.

371. **Patella** (?) ———. Sp. indet. *a*.

*Station*.—On rocks not far from half tide level.

*Habitat*.—Panama ; C. B. A. !

16 specimens were collected.

372. **Chiton clathratus.***Synonymy.*

*Chiton clathratus* Reeve Conch. Icon. pl. 18. f. 113. Apr. 1847.

*Station.*—Under stones near low water mark.

*Habitat.*—Unknown; Reeve.

Panama; C. B. A.!

12 specimens were found.

373. **Chiton dispar.***Synonymy.*

*Chiton dispar* Sowb. in Proc. Zool. Soc. Lond. p. 58. Mar. 1832.

——— Müll. Syn. Nov. Test. Viv. p. 168. 1836.

——— Lam. An. sans Vert. VII. 511. No. 50. (Desh. ed.) 1838.

——— Sowb. Conch. Ill. No. 47. pl. 41. f. 25. 1841.

——— Lam. An. sans Vert. III. Pt. 1. p. 188. No. 50.

(Desh. ed. tert.) - - - - Apr. 1841.

——— Reeve Conch. Icon. pl. 18. f. 96. Apr. 1847.

*Station.*—Under stones: Cuming! Sowerby: also Reeve.

Our specimens were found under stones near the low water mark of neap tides.

*Habitat.*—"I. of Saboga;" Cuming! Sowerby.

Gulf of Panama; Deshayes.

"I. of Saboga, Panama;" Cuming! Reeve.

Panama, and Taboga; C. B. A.!

This species is common. We collected about 100 specimens, many of which have been destroyed by rats.

374. **Chiton luridus ?***Synonymy.*

*Chiton luridus* Sowb. in Proc. Zool. Soc. Lond. p. 26. Feb. 1832.

——— Müll. Syn. Nov. Test. Viv. p. 163. 1836.

——— Lam. An. sans Vert. VII. 495. No. 13. (Desh. ed.) 1838.



*Chiton luridus* Lam. An. sans Vert. III. Pt. 1. p. 182. No. 13.

(Desh. ed. tert.) - - - - - 1839.

—— Sowb. Conch. III. No. 99. para. pl. 40. f. 20. 1841.

—— Reeve Conch. Icon. pl. 15. f. 85. Mar. 1847.

Our specimens differ from *C. luridus*, as described by Sowerby and by Reeve, in having the granules of the terminal valves and of the lateral areas rather sparsely scattered, instead of being crowded.

*Station*.—Attached to stones at a depth of 5 fathoms; Cuming! Sowerby: also Reeve.

Our specimens were found under stones at low water mark.

*Habitat*.—St. Elena; Cuming! Sowerby: also Reeve.

St. Elena; Jay.

Panama; C. B. A.!

3 specimens were found.

### 375. *Chiton pulchellus*.

#### *Synonymy*.

*Chiton pulchellus* Gray Spicil. Zool. 1828.

—— Orb. Voy. Amer. Merid. Moll. p. 489. 1843.

—— Reeve Conch. Icon. pl. 23. f. 153. May 1847.

*Station*.—30 or 40 fathoms depth; Orbigny.

Under stones, which were lying half buried in sand near the low water mark of the neap tides.

*Habitat*.—Arica, in Peru; W. V. Hennah! Reeve.

Islay; Orbigny.

Panama and Taboga; C. B. A.!

80 specimens were collected.

### 376. *Chiton Stokesii*.

#### *Synonymy*.

*Chiton Stokesii* Brod. in Proc. Zool. Soc. Lond. p. 25. Feb. 1832.

<i>Chiton Stokesii</i>	Müll. Syn. Nov. Test. Viv. p. 162.	1836.
— — — — —	Lam. An. sans Vert. VII. 510 No. 49. (Desh. ed.)	1838.
— — — — —	Lam. An. sans Vert. III. Pt. 1. p. 188. No. 49.	
	(Desh. ed. tert.) - - - - -	1841.
— — — — —	Sowb. Conch. Ill. No. 20. pl. 41. f. 24.	1841.
— — — — —	Orb. Voy. Amer. Merid. Moll. p. 486.	1843.
— — — — —	Reeve Conch. Icon. pl. 1. f. 4.	Mar. 1847.

*Station*.—On stones at low water; Cuming! Broderip. Under stones at low water; Cuming! Reeve.

Our specimens were found under stones near the low water of neap tides.

*Habitat*.—Port St. Elena, and Panama; Cuming! Broderip.  
Seas of South America; Deshayes.  
Columbia; Sowerby: also Jay.  
Arica and Islay; Orbigny!  
St. Elena; Cuming! Reeve.  
Taboga and Panama; C. B. A.!

We collected about 40 specimens, many of which have been destroyed by rats. The species is very common.

### Family—OSTRÆIDÆ.

#### 377. *Anomia lampe*.

##### *Synonymy*.

<i>Anomia lampe</i>	Gray in Proc. Zool. Soc. Lond. p. 117.	Nov. 1849.
— — — — —	Gray in Catal. Anom. Brit. Mus. p. 19.	1850.

*Station*.—In 60 fathoms water; Major Rich! Gould MSS. It also occurs at low water mark.

*Habitat*.—California; Gray.

La Paz and Monterey, Calif.; Major Rich! Gould MSS.

Panama; C. B. A.!

Only 1 specimen was obtained. The specimen obtained from 60 fathoms water by Major Rich was taken at Monterey. One from La Paz in Mus. Gould is of enormous size.

378. **Anomia tenuis.** Nov. sp.

Shell orbicular: flat, extremely thin: white, subtransparent, pearly: externally somewhat uneven: upper scar large, rounded, with the lower side arcuated: two lower scars small, circular, equal: anterior one nearly entering the arcuation of the upper scar; posterior one near the other, with the upper margin as high as the centre of the other.

Diameter about .85 inch.

*Station.*—Near low water mark.

*Habitat.*—Panama; C. B. A.!

3 specimens were obtained.

379. **Anomia** ———. Sp. indet. *a.*

A very small yellow shell with the convex valve excessively convex, and the margin lobate. Although only 1 valve was found, it is obvious that it belongs to a very distinct species.

380. **Ostrea** ———. Sp. indet. *a.*

Rather large and ovate; with the upper valve radiately corrugated, with many notches on both sides of the hinge: lower valve attached to a ledge of rock by the whole of its surface: on this account it is rarely possible to detach a specimen entire. It occurs more commonly near half tide level. It is rather common, but not abundant on the reef at Panama. We collected only 6 specimens. It is an edible species of excellent flavor. During the recess of the tide the natives open the shells on the rocks, without detaching the lower valves, and collect the soft parts in a calabash.

381. **Ostrea** ———. Sp. indet. *b.*

Rather large and solid, with both valves strongly notched on both sides of the hinge: surface without sculpture other than

the incremental striæ: nacre extremely brilliant, with delicate changeable colors.

Attached to ledges of rock by the greater part of the lower valve. It occurs near half tide level.

It is not common: we collected only 3 specimens on the reef at Panama.

382. **Ostrea** ———. Sp. indet. *c*.

*Synonymy.*

† *O. Columbiensis* Hanley, P. Z. S. Lond. p. 107.

Oct. 1845.

Rather small, more or less pentangular, and short but not plicated.

Attached to stones, rocks, and other shells, near half tide level: the lower valve is attached by rather more than half of its surface, and then abruptly rises from the attached part so as to form a deep cavity.

*O. Columbiensis* Hanl. was found by Mr. Cuming attached to rocks at half tide at St. Elena. At Panama our shell is not rare, although we took only 15 specimens.

383. **Ostrea** ———. Sp. indet. *d*.

Like *O. borealis*.

Usually occurs in clusters.

It was brought from some place near Panama which we did not visit. We obtained 35 specimens. The flavor is superior to that of *O. virginica* or *O. borealis*. They were sold in Panama at a dime each.

384. **Ostrea** ———. Sp. indet. *e*.

A small plicated species. The animal has a bitter flavor. Attached to rocks and stones from three quarters to one quarter tide level. A small var. grows on *Nerita scabricosta*.

This species covers many parts of the reef at Panama in great profusion. We collected 380 specimens.

## Family—PECTENIDÆ.

385. **Spondylus Lamarckii?***Synonymy.**Spondylus Lamarckii* (?) Chenu Ill. Conch. p. 6. pl. 9. f. 4.

—————	—————	(?) Sowb. Thes. Conch. p. 425. No. 21.	
		pl. 85. f. 20.	- - - - 1847.

Our specimens being old, with the sculpture eroded, we are unable to determine confidently what the species is, it being unfortunately the custom in this genus and in *Chama* to describe and figure little more than those exterior characters which are very rarely found in perfection. One of the most permanent characters of this species is the broad deep red purple finely wrinkled limb of the otherwise white interior.

*Station.*—Unknown.*Habitat.*—La Paz; Lt. Green! Gould MSS.

Bay of Panama; C. B. A.!

At Taboga we found a large pile of odd valves of this species, which the natives had taken in the bay.

386. **Spondylus** ———. Sp. indet. *a.*

Brown, with a narrow white margin. Only one very young specimen was found. Hab. Panama.

387. **Pecten Inca.***Synonymy.*

<i>Pecten tumidus</i>	Sowb. (non Turt. nec Zeiten) in Proc.	
	Zool. Soc. Lond. p. 109.	- - July 1835.
——— <i>ventricosus</i>	Sowb. Thes. Conch. p. 51. No. 19. pl.	
	12. f. 18, 19, 26.	- - - - 1842.
——— <i>Inca</i>	Orb. Voy. Amer. Merid. Moll. p. 663.	1846.

*Station.*—In sandy mud at from 6 to 10 fathoms.

*Habitat*.—St. Elena and Salango; Cuming! Orbigny.

St. Elena; Sowerby.

Calapan, Philippines; Cuming! Sowerby; "young specimens."

West Columbia; Jay.

Taboga and Panama; C. B. A.!

Great numbers of odd valves, much worn, were seen at Taboga; but we did not learn the station of the species, and collected only 8 odd valves.—Probably the young shells from the Philippines are the young of some allied but distinct species.

### 388. **Pecten Tumbezensis.**

#### *Synonymy.*

<i>Pecten aspersus</i>	Sowb. (non Lam.) in Proc. Zool. Soc.	
— — — — —	Lond. p. 110. - - - - -	July 1835.
— — — — —	Sowb. Thes. Conch. p. 51. No. 16. pl.	
— — — — —	19. f. 198-9. - - - - -	1842.
— — — — —	Hanley Descr. Catal. p. 271.	1845!
— — — — —	<i>Tumbezensis</i> Orb. Voy. Amer. Merid. Moll. p. 663.	1846.

*Station*.—Soft mud at the depth of 5 fathoms: Cuming! Sowerby.

*Habitat*.—Tumbez, in Peru; Cuming! Sowerby: also Orbigny.

Peru; Hanley.

Mazatlan; Melchers! Menke.

Panama; C. B. A.!

Only 2 odd valves were found.

### 389. **Lima angulata.**

#### *Synonymy.*

<i>Lima angulata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 23.	Feb. 1843.
— — — — —	Sowb. Thes. Conch. p. 86. No. 12. pl. 22.	
— — — — —	f. 39, 40. - - - - -	1843.
— — — — —	Orb. Voy. Amer. Merid. Moll. p. 653.	1846.

*Station*.—Sandy mud, 12 to 20 fathoms; Cuming! Sowerby.

*Habitat*.—Panama and Bay of Caraccas; Cuming! Sowerby:  
also Orbigny.

Panama; C. B. A.!

We found 1 entire shell and 3 odd valves.

### 390. *Lima Pacifica*.

#### *Synonymy*.

*Lima arcuata* Sowb. (non Geinitz 1840) *Thea. Conch.* p. 86.

No. 15. pl. 22. f. 41-2. - - - - 1843.

— — — — Hanley *Descr. Catal.* p. 288. 1845!

— *Pacifica* Orb. *Voy. Amer. Merid. Moll.* p. 654. 1846.

*Station*.—Under stones at the low water mark of the spring tides.

*Habitat*.—Guayaquil and Panama; Cuming! Orbigny.

Panama; Hanley.

Panama; C. B. A.!

"At Lord Hood's I., under coral rocks; at Panama, in sandy mud; at Guayaquil Bay; at Guacomayo, under stones, &c., by Mr. Cuming." Sowerby.

3 specimens were found alive on the reef.

#### Family—AVICULIDÆ.

### 391. *Avicula margaritifera*?

Under the name of *A. margaritifera* are included several kindred but distinct types. It would be of great service to the general subject of the geographical distribution of marine species, if some one would collect authentic materials, and investigate the peculiarities of the local types.

*Station*.—In the crevices of rocks near low water mark.

*Habitat*.—Taboga; C. B. A.!

We found only 2 living, rather young, specimens. Probably

these are identical with the species which occurs abundantly in some parts of the Bay of Panama, and from which pearls are procured.

392. **Avicula sterna.**

*Synonymy.*

*Avicula sterna* Gould Proc. Bost. Soc. Nat. Hist. p. 93. Nov. 1851.

*Station.*—Attached to a small species of Gorgona, at the low water mark of the spring tides.

*Habitat.*—Panama; E. Jewett! Gould MSS.

Panama; C. B. A.!

10 specimens were collected on the reef.

393. **Perna** ———. Sp. indet. *a.*

*Station.*—Under stones and in the crevices of rocks at low water mark.

*Habitat.*—La Paz; Lt. Green! Gould MSS.

Panama; C. B. A.!

130 specimens were collected on the reef.

394. **Perna** ———. Sp. indet. *b.*

With the preceding: 30 specimens were collected.

Family—MYTILIDÆ.

395. **Pinna maura.**

*Synonymy.*

*Pinna maura* Sowb. in Proc. Zool. Soc. Lond. p. 84.

June 1835.

——— Hanley Descr. Catal. p. 255.

1845!

*Station.*—Muddy banks; Cuming! Sowerby.

*Habitat.*—Panama; Cuming! Sowerby.

Panama; Hanley!



Panama; C. B. A.!

Only 1 specimen was found.

396. **Pinna tuberculosa.**

*Synonymy.*

*Pinna tuberculosa* Sowb. in Proc. Zool. Soc. Lond. p. 84. June 1835.

————— Hanley Desc. Catal. p. 255. 1845!

*Station.*—Muddy banks; Cuming! Sowerby.

We found it in crevices of rocks, near low water mark.

*Habitat.*—Panama; Cuming! Sowerby.

Panama; Hanley.

Panama; C. B. A.!

4 specimens were found on the reef.

397. **Mytilus** ———. Sp. indet. *a.*

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

1 specimen was obtained.

398. **Lithodomus** ———. Sp. indet. *a.*

*Station.*—In thick shells, between half tide and low water mark.

*Habitat.*—Panama; C. B. A.!

20 specimens were collected on the reef.

399. **Modiola semifusca?**

*Synonymy.*

*Modiola semifusca* (?) Lam. An. sans Vert. No. 11. 1820.

————— Sowb. Gen. pl. —. f. 6. 1824.

————— (?) Lam. An. sans Vert. VII. 22. No. 11.  
(Desh. ed.) - - - - - 1836.

*Mytilus Guianensis* Küst. (an Lam. ?) Conch. Cab. pl. 1. f. 7. 1840.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

A few dead shells were found in several places near Panama, and fine specimens were procured at the fruit shanty. 35 specimens were obtained.

400. **Modiola** ———. Sp. indet. *a*.

*Station*.—In the crevices of rocks, between half tide and low water mark.

*Habitat*.—Panama and Taboga; C. B. A.!

6 specimens were obtained.

401. **Modiola** ———. Sp. indet. *b*.

*Station*.—In the crevices of rocks, between half tide and low water mark.

*Habitat*.—Taboga; C. B. A.!

35 specimens were collected.

402. **Modiola** ———. Sp. indet. *c*.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

4 specimens were obtained.

403. **Modiola** ———. Sp. indet. *d*.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

2 specimens were found.

404. **Modiola** ———. Sp. indet. *e*.

*Station*.—In soft, partly calcareous stones, not far from half tide level.

*Habitat*.—Panama; C. B. A.!

2 specimens were obtained.

Family—CHAMIDÆ.

405. **Chama Buddiana.** Nov. sp.

Shell orbicular or subtriangular: exterior surface and inner margins purplish red, with the spines pure white: surface uneven, with interrupted radiating striæ; upper valve ornamented with a few radiating series of short thick triangular vaulted spines: lower valve attached by about two-thirds to three-quarters of its surface, the rest being like the upper valve, but with the dentiform spines smaller: within both valves are deeply and finely crenulated at the junction of the white surface and red margin: beak submarginal. Easily distinguished from *C. Pacifica* and *C. Broderipii* by the small thick dentiform triangular white spines.

Diameter about 3 inches.

*Station*.—On ledges of rocks, a little above low water mark. The lower valve is so firmly attached as to render it difficult to obtain specimens entire without the use of mineralogical tools.

*Habitat*.—Guaymas; Lt. Green! Mus. Essex Inst.

Panama; C. B. A.!

6 specimens were obtained.

Named in honor of Dr. B. W. Budd of New York city.

406. **Chama corrugata?**

*Synonymy.*

<i>Chama corrugata</i>	Brod. in Proc. Zool. Soc. Lond. p. 150.	Dec. 1834.
— — — — —	Brod. in Trans. Zool. Soc. Lond. I. 305.	
	pl. 31. f. 7.	1835.
— — — — —	Hanley Descr. Catal. p. 229.	1845?
— — — — —	Reeve Conch. Icon. pl. 2. f. 9.	Dec. 1846.

Possibly our shell may be a large specimen of *C. Panamen-*

*sis* Reeve. Having only 2 odd valves with an eroded surface, we are unable to determine the species with confidence.

*Station*.—Attached to stones at low water; Cuming! Broderip. Under stones; Cuming! Reeve.

*Habitat*.—Real Llejos; Cuming! Broderip: also Reeve.

Central America; Hanley.

Real Llejos; Jay.

Panama; C. B. A.!

We found only 2 valves.

#### 407. **Chama echinata.**

##### *Synonymy.*

*Chama echinata* Brod. in Proc. Zool. Soc. Lond. p. 150. Dec. 1834.

——— Brod. in Trans. Zool. Soc. Lond. p. 305. pl. 39.

f. 5-7. — — — — — 1835.

——— Reeve Conch. Icon. pl. 7. f. 35. junior. Jan. 1847.

*Station*.—At low water, attached to rocks; Cuming! Broderip: also Reeve. On rocks near low water mark.

*Habitat*.—Puerto Portrero; Cuming! Broderip: also Reeve.

Panama; C. B. A.!

15 specimens were obtained.

#### Family—ARCIDÆ.

#### 408. **Nucula Elenensis.**

##### *Synonymy.*

*Nucula Elenensis* Sowb. in Proc. Zool. Soc. Lond. p. 198. Dec. 1832.

——— Müll. Syn. Test. Viv. p. 191. 1836.

——— Sowb. Conch. Ill. No. 19. pl. 15. f. 14. 1841.

——— Reeve Conch. Syst. pl. 85. f. 14. Sept. 1841.

——— Hanley Descr. Catal. p. 169. 1845!

With some hesitation we have referred our specimens to this species, although we cannot detect the "marginibus crenulatis."

*Station*.—Sandy mud, at a depth of 6 fathoms; Cuming! Sowerby.

*Habitat*.—St. Elena; Cuming! Sowerby: also Müller.

West Columbia; Hanley.

Panama; C. B. A.!

20 odd valves were found.

#### 409. *Nucula exigua*.

##### *Synonymy*.

<i>Nucula exigua</i>	Sowb. in Proc. Zool. Soc. Lond. p. 198.	Dec. 1832.
————	Müll. Syn. Test. Viv. p. 192.	1836.
————	Sowb. Conch. Ill. No. 34. pl. 16. f. 24.	1841.
————	Hanley Descr. Catal. p. 172.	1845?
————	Orb. Voy. Amer. Merid. Moll. p. 625.	1846.

*Station*.—Sandy mud, in 9 fathoms; Cuming! Sowerby:

*Habitat*.—Bay of Caraccas; Cuming! Sowerby: also Müller:  
also Orbigny.

West Columbia; Hanley.

Panama; C. B. A.!

1 valve only was found.

#### 410. *Nucula polita*.

##### *Synonymy*.

<i>Nucula polita</i>	Sowb. in Proc. Zool. Soc. Lond. p. 198.	Dec. 1832.
————	Lam. An. sans Vert. VI. 507. No. 8. (Desh. ed.)	1835.
————	Müll. Syn. Test. Viv. p. 190.	1836.
————	Lam. An. sans Vert. II. 660. No. 8. (Desh. ed. tert.)	1839.
————	Sowb. Conch. Ill. No. 16. pl. 15. f. 11.	1841.
————	Reeve Conch. Syst. pl. 85. f. 11.	Sept. 1841.
————	Hanley Descr. Catal. p. 169.	1845?

*Station*.—A single specimen of this very beautiful species was dredged up in sand from a depth of 7 fathoms; Cuming! Sowerby.

*Habitat*.—Panama; Cuming! Sowerby: also Müller.

Panama; Deshayes: also Hanley.

Panama; C. B. A.!

10 odd valves were found.

#### 411. **Pectunculus assimilis.**

##### *Synonymy.*

*Pectunculus assimilis* Sowb. in Proc. Zool. Soc. Lond. p. 196. Dec. 1832.

————— Müll. Syn. Test. Viv. p. 189. 1836.

————— Reeve Conch. Icon. pl. 4. f. 15. Mar. 1843.

————— Orb. Voy. Amer. Merid. Moll. p. 629. 1846.

In the number, width, and form of the cross bands of brown our specimens are so variable that no two are alike, and two of them have most of the ground color of a greyish blue. In respect of coloring, therefore, the species does not appear to be well distinguished from *P. inequalis*. Nor is the distinction in sculpture much more constant.

*Station*.—In sandy mud and gravel, in from 8 to 12 fathoms; Cuming! Sowerby: also Reeve.

Our specimens were found under stones, in calcareous gravel, between one quarter tide and low water mark.

*Habitat*.—Puerto Portrero, Bay of Guayaquil, Central America; Cuming! Sowerby: also Müller: also Reeve: also Orbigny.

Guayaquil; Jay.

Mazatlan; Lt. Green! Gould MSS.

Panama; C. B. A.!

20 specimens were collected on the reef.

A common ambiguity again appears in Mr. Sowerby's statement; since the Bay of Guayaquil (and Puerto Portrero?) is not in Central America, is the latter mentioned as a third locality?

412. **Pectunculus maculatus?***Synonymy.*

*Pectunculus maculatus* Brod. in Proc. Zool. Soc. Lond. p. 126. June 1832.  
 ———— ———— Reeve Conch. Icon. pl. 1. f. 4. Feb. 1843.

*Station.*—In fine gravel in 11 fathoms water; Cuming!  
 Broderip.

*Habitat.*—Puerto Portrero; Cuming! Broderip: also Reeve.  
 Panama; C. B. A.!

We obtained only one specimen. It is nearly covered with very large irregular spots and radiating lines of dark red; it is also very convex at the umbones, and in both of these characters appears to differ from the *P. maculatus* as described by Mr. Broderip, and as figured by Mr. Reeve.

413. **Arca alternata.***Synonymy.*

*Byssoarca alternata* Sowb. in Proc. Zool. Soc. Lond. p. 17. Feb. 1833.  
 ———— ———— Müll. Syn. Test. Viv. p. 184. 1836.  
*Arca* ———— Reeve Conch. Icon. pl. 13. f. 88. Apr. 1843.  
 ———— ———— Hanley Descr. Catal. p. 156. 1845?  
 ———— ———— Orb. Voy. Amer. Merid. Moll. p. 638. 1846.

*Station.*—Attached to stones, on a rocky bottom, at the depth of 12 fathoms; Cuming! Sowerby: also Reeve.

*Habitat.*—West Columbia; Cuming! Sowerby: also Reeve.  
 Equador; Cuming! Orbigny.  
 West Columbia; Hanley.  
 Mazatlan; E. Jewett! Gould MSS.  
 Panama and Taboga; C. B. A.!

4 specimens were collected.

414. **Arca aviculoides?***Synonymy.*

*Arca auriculata* Sowb. in Proc. Zool. Soc. Lond. p. 20. Feb. 1833.

*Arca aviculoides* Reeve Conch. Icon. pl. 10. f. 63.

Mar. 1844.

*Station*.—Muddy bottom at the depth of 10 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—St. Elena; Cuming! Sowerby: also Reeve.

Panama; C. B. A.!

1 specimen was obtained, which is too young to be confidently determined without a series.

#### 415. *Arca emarginata*.

##### *Synonymy*.

<i>Arca emarginata</i> Sowb. in Proc. Zool. Soc. Lond. p. 20.	Feb. 1833.
——— Müll. Syn. Test. Viv. p. 180.	1836.
——— Reeve Conch. Icon. pl. 4. f. 26.	Jan. 1844.
——— Hanley Descr. Catal. p. 161.	1845!
——— Orb. Voy. Amer. Merid. Moll. p. 635.	1846.

*Station*.—Sandy mud at the depth of 6 or 8 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—Real Llejos, Atacamas, Xipixapi, Panama, and Gulf of California; Cuming! Sowerby: also Reeve.

Atacama, Xipixapi, and Panama; Cuming! Orbigny.

Central America; Hanley.

Panama; C. B. A.!

3 specimens were obtained.

#### 416. *Arca gradata*.

##### *Synonymy*.

<i>Arca gradata</i> Brod. and Sowb. in Zool. Journ. IV. 365.	1829.
——— Gray in Zool. Beech. Voy. p. 152. pl. 43. f. 1.	1839.
——— Reeve Conch. Icon. pl. 14. f. 92.	Apr. 1844.
——— Hanley Descr. Catal. p. 155.	1845!
——— Orb. Voy. Amer. Merid. Moll. p. 636.	1846.



*Station*.—Attached to stones; Cuming! Reeve.

Our specimens were found under stones near low water mark.

*Habitat*.—Mazatlan; Broderip: also Beechey's Voyage.

St. Elena; Cuming! Reeve: also Orbigny.

St. Elena; Jay.

Mexico; Hanley.

Santa Barbara; E. Jewett! Gould MSS.

Taboga; C. B. A.!

3 specimens were found.

#### 417. *Arca grandis*.

##### *Synonymy*.

<i>Arca grandis</i>	Brod. et Sowb. in Zool. Jour. IV. 365.	1829.
— — — — —	Reeve Conch. Icon. pl. 1. f. 4.	Dec. 1843.
— — — — —	Hanley Descr. Catal. p. 160.	1845?
— — — — —	Orb. Voy. Amer. Merid. Moll. p. 637.	1846.

*Station*.—Our specimens were found half buried in mud and small algæ, under trees, a little above half tide level.

*Habitat*.—Unknown; Broderip.

Real Llejos, Bay of Guayaquil, &c., Western Coast  
of S. America; Cuming! also Hinds! Reeve.

Guayaquil; Fontaine! Orbigny.

Panama; Jay.

Panama: C. B. A.!

13 specimens were obtained. This species is used by the natives for food. A single valve taken from a heap of the shells of edible mollusks weighs 2½ lbs.

#### 418. *Arca mutabilis*.

##### *Synonymy*.

<i>Byssarca mutabilis</i>	Sowb. in Proc. Zool. Soc. Lond. p. 17.	Feb. 1833.
<i>Arca</i> — — — — —	Reeve Conch. Icon. pl. 13. f. 85.	Apr. 1844.
— — — — —	Hanley Descr. Catal. p. 156.	1845!

*Arca mutabilis* Orb. Voy. Amer. Merid. Moll. p. 638.

1846.

*Station*.—Under stones; Cuming! Sowerby: also Reeve.

Our specimens were found under stones and in the crevices of rocks, near low water mark.

*Habitat*.—I. of Plata; Cuming! Sowerby: also Reeve: also Orbigny.

West Columbia; Hanley.

I. of Plata; Jay.

Panama and Taboga; C. B. A.!

70 specimens were collected; among them are some remarkable varieties of form.

419. ***Arca (Byssarca) pholadiformis*.** Nov. sp.

Shell extremely elongated, subcylindrical, contracted anteriorly, very inequilateral: inferior margin a little irregular, somewhat excurved, scarcely gaping for the passage of the byssus: posterior margin very oblique, moderately excurved: anterior margin well rounded: dingy white: surface very finely and closely fimbriated, with the concentric ridges larger except above the posterior angle of the umbo, on which the concentric ridges are lamellar: with the intersections nodular and deeply marked beneath with the arcuate striæ of growth: umbones flattened, with a very prominent and very oblique posterior angle, from which the radiating ribs divaricate: beaks small: area of ligament linear, nearly concealed: margins of the interior finely crenulate; teeth obsolete at the middle of the series, at the ends divaricate. The sculpture is like that of *A. divaricata* Reeve.

Length 1.25 inch; height .53 inch; breadth .48 inch.

*Station*.—In soft stones, near low water mark.

*Habitat*.—Taboga; C. B. A.!

2 specimens of this extraordinary shell were obtained.

420. **Arca Reeveana.***Synonymy.*

- Arca Helblingii* Reeve (non Brug.) Conch. Icon. spec.  
 90 pars. pl. 14. f. 90 ! - - - Apr. 1844.  
 — *Reeveana* Orb. Voy. Amer. Merid. Moll. p. 635. 1846.

*Station.*—Under stones at low water; Cuming! Reeve.  
 Our specimens were found in the same situation.

*Habitat.*—St. Elena, Monte Christi; Cuming! Reeve.  
 Payta; Fontaine! Orbigny.  
 Panama; C. B. A.!

9 specimens were collected: one of them is nearly 4 inches long. Mr. Reeve mentions also *I. Corregidor*, Philippines, where probably the true *A. Helblingii* was obtained.

421. **Arca reversa.***Synonymy.*

- Arca reversa* Sowb. in Proc. Zool. Soc. Lond. p. 20. Feb. 1833.  
 — — — Müll. Syn. Test. Viv. p. 180. 1836.  
 — *hemicardium* Koch. in Phil. Abbild. I. pl. 1. f. 1. Mar. 1843.  
 — *reversa* Reeve Conch. Icon. pl. 1. f. 5. Dec. 1843.  
 — — — Orb. Voy. Amer. Merid. Moll. p. 635. 1846.

*Station.*—Soft mud, at the depth of 7 fathoms; Cuming!  
 Sowerby: also Reeve.

*Habitat.*—Tumbez; Cuming! Sowerby: also Reeve: also  
 Orbigny.

Unknown: Koch.

Panama; C. B. A.!

4 odd valves were found.

422. **Arca similis.** Nov. sp.

Shell ellipsoidal, very inequilateral, slightly auriculate: inferior margin subrectilinear; anterior and posterior margins well

rounded: dorsal margin somewhat oblique: white: with an epidermis, which is greenish brown on the young shell, and brownish black on an old shell: with forty to forty-four ribs, which are larger and more sharply angled posteriorly: umbones prominent, flattened, not angulated: area of the ligament narrow, depressed: margins of the interior pectinated by the ribs: teeth small. It resembles *A. tuberculosa* Sowb.

Length 2.2 inches; height 1.3 inch; breadth 1.1 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

10 specimens were obtained.

#### 423. *Arca solida*.

##### *Synonymy*.

<i>Byssarca solida</i>	Sowb. in Proc. Zool. Soc. Lond. p. 18.	Feb. 1833.
—	Müll. Syn. Test. Viv. p. 186.	1836.
<i>Arca</i>	— Reeve Conch. Icon. pl. 16. f. 106.	May 1844.
—	— Hanley Descr. Catal. p. 155.	1845†
—	— Orb. Voy. Amer. Merid. Moll. p. 633.	1846.

*Station*.—Under stones; Cuming! Sowerby: also Reeve. Our specimens were found under stones, near low water mark.

*Habitat*.—Payta; Cuming! Sowerby; also Reeve: also Orbigny.

Peru; Hanley.

Payta; Jay: Lt. Green! Gould MSS.

Panama and Taboga: C. B. A.!

60 specimens were collected.

#### 424. *Arca (Byssarca) Tabogensis*. Nov. sp.

Shell not much elongated, not very inequilateral; inferior margin nearly straight, a little gaping for the passage of the byssus; posterior margin oblique, rectilinear or mode-

rately excurved; anterior margin well rounded: dingy white, with blackish brown epidermis: with numerous very prominent but very narrow linear ribs, which are often alternately large and small, and of which a few at each extremity are a little stouter and are subnodulous; with a few indistinct concentric lines: umbones prominent, flattened: area of the ligament very narrow, anteriorly widened abruptly: margins of the interior finely and irregularly crenulated: middle teeth very small. The epidermis is between pilose and lamellar, with the points long posteriorly.

Length 1.3 inch; height .85 inch; breadth .65 inch.

*Station*.—Under stones near low water mark.

*Habitat*.—Taboga and Panama; C. B. A.!

60 specimens were collected, mostly at Taboga.

#### 425. *Arca tuberculosa*.

##### *Synonymy*.

<i>Arca tuberculosa</i> Sowb. in Proc. Zool. Soc. Lond. p. 19.	Feb. 1833.
——— Müll. Syn. Test. Viv. p. 179.	1836.
——— Phil. Abbild. I. pl. 1. f. 2.	Mar. 1843.
——— Reeve Conch. Icon. pl. 3. f. 18.	Jan. 1844.
——— Hanley Descr. Catal. p. 161.	1845!

*Station*.—Found at low water at the roots of the mangrove trees; Cuming! Sowerby: also Reeve. Our specimens were found in impalpable mud, under a mangrove thicket, near high water mark.

*Habitat*.—Real Llejos; Cuming! Sowerby: also Reeve.

Pacific Ocean, Central America; Philippi.

South America; Hanley.

Real Llejos; Jay.

Mazatlan; Lt. Green! Mus. Essex Inst.

Panama; C. B. A.!

We procured 147 specimens, many of which were obtained from the natives. The animal is used by them for food.

426. **Arca** ———. Sp. indet. *a*.

*Habitat*.—Panama; C. B. A.!

2 specimens were found. They are too young for description. The species is remarkable for the prominence and sharpness of one of its two umbonial angles.

Family—CARDIIDÆ.

427. **Cardita affinis**.

*Synonymy*.

<i>Cardita affinis</i>	Sowb. in Proc. Zool. Soc. Lond. p. 195.	Dec. 1832.
—————	Müll. Syn. Test. Viv. p. 211.	May 1836.
—————	Reeve Conch. Icon. pl. 1. f. 6.	June 1843.
—————	Hanley Descr. Catal. p. 149.	1845?
————— <i>modulosa</i> (?)	Val. Voy. Venus Moll. pl. 22. f. 2.	1846.

Valenciennes quotes Lamarck for the name which he gives to this species, which must therefore be an error for *nodulosa*. But the Lamarckian shell probably belongs to a different species, for it is said to be Australian. The name *nodulosa* is yet farther involved in errors, by its reappearance in Reeve's *Iconica* for a very different species.

*Station*.—Sandy mud, at a depth of from 6 to 12 fathoms; Cuming! Sowerby.

Our specimens were found in stones and rocks at and below half tide level. It is a boring species.

*Habitat*.—Bay of Montija and Gulf of Nicoya; Cuming!

Sowerby: also Müller.

Central America; Hanley.

Mazatlan; Melchers! Menke.

West Columbia; Jay.

Guaymas; Lt. Green! Gould MSS.

Panama and Taboga; C. B. A.!

70 specimens were collected.

#### 428. *Cardita laticostata*.

##### *Synonymy.*

<i>Cardita laticostata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 195.	Dec. 1832.
—————	Müll. Syn. Test. Viv. p. 210.	May 1836.
—————	Reeve Conch. Icon. pl. 7. f. 36.	Aug. 1843.
—————	Hanley Descr. Catal. p. 146.	1845?
—————	Orb. Voy. Amer. Merid. Moll. p. 582.	1846.
———— <i>arcella</i>	Val. Voy. Venus. Moll. pl. 22. f. 1.	1846.
	Reeve Elem. Conch. pl. 35. f. 191.	1849?

*Station*.—In sand, at a depth of 6 to 12 fathoms; Cuming! Sowerby.

In coarse sand and mud at the depth of from 10 to 12 fathoms; Cuming! Reeve.

Our specimens were found partly buried in calcareous sand and gravel, under stones, near the low water mark of spring tides.

*Habitat*.—Guacomayo, St. Elena, Panama, and Real Llejos; Cuming! Sowerby; also Müller.

St. Elena, Panama, Real Llejos, Guayaquil, &c. Cuming! Reeve.

All the Coast of Peru from Payta to St. Elena in Equador; Orbigny.

Central America; Hanley.

Guayaquil and Real Llejos; Jay.

Panama; C. B. A.!

We collected 150 specimens on the reef.

#### 429. *Cardita radiata*.

##### *Synonymy.*

<i>Cardita radiata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 195.	Dec. 1832.
JULY, 1832.	41	Ann. Lye. Nat. Hist.

<i>Cardita radiata</i>	Müll. Syn. Test. Viv. p. 211.	May 1836.
————	Reeve Conch. Icon. pl. 1. f. 5.	June 1843.
————	Hanley Descr. Catal. p. 148.	1845 †
————	Orb. Voy. Amer. Merid. Moll. p. 582.	1846.

*Station*.—In muddy sand at the depth of from 6 to 12 fathoms; Cuming! Sowerby: also Reeve.

Our specimens were found near low water mark.

*Habitat*.—Salango and Panama; Cuming! Sowerby: also

Müller: also Orbigny: also Reeve.

West Columbia and Panama; Hanley.

Salango and Panama; Jay.

Taboga and Panama; C. B. A. †

We collected 20 specimens in various stages of growth.

#### 430. *Cardium graniferum*.

##### *Synonymy.*

<i>Cardium graniferum</i>	Brod. et Sowb. in Zool. Journ. IV. 367.	1829.
————	Sowb. Conch. Ill. No. 38. pl. 49. f. 17.	1841.
————	Reeve Conch. Syst. pl. 76. f. 17.	Sept. 1841.
————	Reeve Conch. Icon. pl. 8. f. 43.	Nov. 1844.
————	Hanley Descr. Catal. p. 137.	1845 †
————	Orb. Voy. Amer. Merid. Moll. p. 592.	1846.

*Station*.—Unknown.

*Habitat*.—Mazatlan; Broderip.

Pacific Ocean; Cuming! Sowerby.

Gulf of Nicoya and Xipixapi; Cuming! Reeve:  
also Orbigny.

Pacific; Hanley.

West Columbia; Jay.

Panama; C. B. A. †

6 odd valves were found.



431. **Cardium obovale.***Synonymy.**Cardium obovale* Brod. and Sowb. in Proc. Zool. Soc. Lond.

	p. 84.	- - - - -	July 1833.
—————	Müll. Syn. Test. Viv. p. 217.		May 1836.
—————	Sowb. Conch. Ill. No. 90. pl. 46. f. 4.		1841.
—————	Reeve Conch. Syst. pl. 73. f. 4.		Sept. 1841.
—————	Reeve Conch. Icon. pl. 21. f. 117.		Mar. 1845.
—————	Orb. Voy. Amer. Merid. Moll. p. 593.		1846.

*Station.*—Sandy mud, at the depth of 11 fathoms; Cuming!  
Sowerby: also Reeve.

*Habitat.*—Xipixapi; Cuming! Sowerby: also Müller: also  
Reeve: also Orbigny.  
Panama; C. B. A.!

3 odd valves of this remarkable species were found.

432. **Cardium planicostatum.***Synonymy.*

<i>Cardium planicostatum</i>	Sowb. Proc. Zool. Soc. Lond. p. 83.	July 1833.
—————	Müll. Syn. Test. Viv. p. 217.	May 1836.
—————	Sowb. Conch. Ill. No. 83. pl. 50.	
	f. 25. - - - - -	1841.
—————	Reeve Conch. Icon. pl. 6. f. 31.	Nov. 1844.

*Station.*—In fine sand at the depth of 13 fathoms; Cuming!  
Sowerby: also Reeve.

*Habitat.*—Guacomayo; Cuming! Sowerby: also Müller: also  
Reeve.

Panama; C. B. A.!

1 valve of this extremely rare shell was obtained.

433. **Cardium procerum.***Synonymy.*

*Cardium procerum* Sowb. in Proc. Zool. Soc. Lond. p. 83. July 1833.

<i>Cardium procerum</i>	Müll. Syn. Test. Viv. p. 216.	May 1836.
—————	Sowb. Conch. Ill. No. 61. pl. 50. f. 23.	1841.
—————	Reeve Conch. Syst. pl. 77. f. 23.	Sept. 1841.
—————	Reeve Conch. Icon. pl. 10. f. 51.	Dec. 1844.
—————	Hanley Descr. Catal. p. 140.	1845 !
—————	Orb. Voy. Amer. Merid. Moll. p. 594.	1846.

*Station*.—In coarse sand, at a depth of from 4 to 6 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—Real Llejos; Cuming! Sowerby: also Müller: also Reeve.

Real Llejos; Jay.

Mazatlan; Melchers! Menke.

Panama; C. B. A.!

6 odd valves were collected, and many more were seen on the beach east of Panama.

#### 434. *Cardium senticosum*.

##### *Synonymy.*

<i>Cardium senticosum</i>	Sowb. in Proc. Zool. Soc. Lond. p. 84.	July 1833.
—————	Müll. Syn. Test. Viv. p. 218.	May 1836.
—————	Sowb. Conch. Ill. No. 43. pl. 47. f. 10.	1841.
—————	Reeve Conch. Syst. pl. 74. f. 10.	Sept. 1841.
————— <i>rastrum</i>	Reeve in Proc. Zool. Soc. Lond. <i>ubi</i> !	
—————	Reeve Conch. Icon. pl. 16. f. 82.	Jan. 1845.
————— <i>senticosum</i>	Reeve Conch. Icon. Ind. and Errata of Cardium - - - -	Mar. 1845.
—————	Hanley Descr. Catal. p. 137.	1845 !
—————	Orb. Voy. Amer. Merid. Moll. p. 593.	1846.

Mr. Reeve's reference to Proc. Z. S., 1841, for Sowerby's description is evidently a misprint for 1833; and the reference to the same work, 1845, for *C. rastrum* seems erroneous. Mr. Hanley's reference to Reeve Conch. Syst. pl. 84 is also a misprint for 74.

*Station*.—In sandy mud, at from 6 to 12 fathoms depth; Cuming! Sowerby.

*Habitat*.—St. Elena; Cuming! Sowerby: also Müller: also  
 Reeve in Index of Cardium: also Orbigny.  
 S. America; Hanley.  
 Taboga; C. B. A.!

5 specimens were found.

Family—VENERIDÆ.

435. **Venus amathusia?**

*Synonymy.*

*Venus amathusia* Phil. Abbild. L. pl. 2. f. 4.

Apr. 1844.

*Station*.—Unknown.

*Habitat*.—Unknown; Philippi  
 Mazatlan; Lt. Green! Gould MSS.  
 Panama; C. B. A.!

We obtained two specimens.

436. **Venus discors?**

*Synonymy.*

*Venus discors* Sowb. in Proc. Zool. Soc. Lond. p. 42.

March 1835.

——— Orb. Voy. Amer. Merid. Moll. p. 563.

1846.

*Station*.—In sandy mud at from 6 to 9 fathoms; Cuming!  
 Sowerby.

Our specimens were found in coarse sand among stones between one-quarter and one-half tide level.

*Habitat*.—St. Elena and Guacomayo; Cuming! Sowerby:  
 also Orbigny.

Guaymas; Lt. Green! Gould MSS.

Panama; C. B. A.!

We collected 146 specimens on the reef.

437. **Venus gnidia.**

*Synonymy.*

*Venus gnidia* Brod. et Sowb. in Zool. Journ. IV. 364.

1829.

<i>Venus gnidia</i>	Gray in Beech. Voy. Zool. pl. 41. f. 3.	1839.
— — —	Reeve Conch. Syst. pl. 68. f. 5.	Sept. 1841.
— — —	Hanley's Supp. Wood Ind. Test. pl. 13. f. 43.	1845 ?
— — —	Hanley Descr. Catal. p. 113.	1845 ?
— — —	Orb. Voy. Amer. Merid. Moll. p. 564.	1846.

*Station*.—Unknown.

*Habitat*.—Pacific; Hanley.

Payta; Fontaine! Orbigny.

San Blas; Jay.

Mazatlan; Lt. Green! Gould MSS.

Panama; C. B. A.!

We obtained 4 specimens of a variety which is distinguished by smaller size and proportionally more approximate concentric ridges. Very fine specimens, with the concentric ridges distant, thin, and much elevated, are sometimes obtained at Panama.

#### 438. *Venus multicostata*.

##### *Synonymy*.

<i>Venus multicostata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 22.	Feb 1835.
— — —	Hanley Descr. Catal. p. 128.	1845 ?
— — — <i>Thouarsi</i>	Val. Voy. Venus. Moll. pl. 16. f. 1.	1846.

*Station*.—In coarse sand, at low water; Cuming! Sowerby.

*Habitat*.—Bay of Panama; Cuming! Sowerby.

Panama; Hanley: also Jay.

La Paz; Lt. Green! Gould MSS.

Taboga; C. B. A.!

5 specimens were collected.

#### 439. *Venus pectunculoides*.

##### *Synonymy*.

<i>Venus pectunculoides</i>	Val. in Voy. Venus. Moll. pl. 16. f. 3.	1846.
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*Station*.—In coarse sand, between one quarter and one half tide level.

*Habitat*.—Guaymas; Lt. Green! Mus. Essex Inst.

Panama; C. B. A.!

172 specimens were collected under a marine grove, on the reef, &c.

#### 440. *Venus subrugosa*.

##### *Synonymy*.

<i>Venus subrugosa</i>	Sowb. Gen. pl. —. f. 2. pl. —. f. 5.	1824!
————	Wood Ind. Test. Supp. pl. 2. f. 6.	1828.
————	Reeve Conch. Syst. pl. 67. f. 2.	Sept. 1841.
————	Phil. Abbild. I. pl. 3. f. 6, 7.	Nov. 1844.
————	Hanley Descr. Catal. p. 116.	1845!
————	Orb. Voy. Amer. Merid. Moll. p. 561.	1846.

*Cytherea subsulcata* Menke must resemble this species.

*Station*.—We found this mollusk partly buried in coarse sand among stones, or under trees, near half tide level.

*Habitat*.—Panama; Wood: also Hanley: also Jay.

Peru; Philippi! Orbigny.

Mazatlan; Lt. Green! Gould MSS.: also Mus. Essex Inst.

Panama; C. B. A.!

We collected 33 specimens on the reef, and in a marine grove west of Panama.

#### 441. *Venus* ———. Sp. indet. *a*.

12 odd valves were found at Taboga and Panama.

#### 442. *Venus* ———. Sp. indet. *b*.

*Station*.—In coarse sand, near half tide level.

*Habitat*.—Panama; C. B. A.!

We collected 14 specimens.

443. **Cytherea affinis.***Synonymy.*

- Cytherea affinis* Sowb. in Proc. Zool. Soc. Lond. p. 45. Mar. 1835.  
 ———— Hanley Supp. Wood Ind. Test. pl. 15. f. 27. 1845?  
 ———— Sowb. Thes. Conch. p. 630. No. 62. pl. 132. f. 101. 1851.

*Station.*—Sandy mud at a depth of 10 fathoms; Cuming! Sowerby.

*Habitat.*—Panama and Xipixapi; Cuming! Sowerby.  
 Panama; C. B. A.!

10 specimens were found on the beach west of Panama.

444. **Cytherea aurantiaca.***Synonymy.*

- Cytherea aurantiaca* Sowb. Gen. pl. —. f. 3. 1824?  
 ———— Reeve Conch. Syst. pl. 69. f. 3. Sept. 1841.  
 ———— *aurantia* Hanley Supp. Wood Ind. Test. pl. 15. f. 20. 1845?  
 ———— *aurantiaca* Jay Catal. p. 35. Dec. 1850.  
 ———— *aurantia* Sowb. Thes. Conch. p. 628. No. 58. pl. 132.  
 f. 97 bis. - - - - - 1851.

*Station.*—Unknown.

*Habitat.*—Unknown; Sowerby: also Hanley.

Gulf of Nicoya; Jay.

Mazatlan; Lt. Green! Mus. Essex Inst.: also  
 Gould MSS.

Taboga; C. B. A.!

We collected 3 specimens of this beautiful shell.

445. **Cytherea consanguinea.** Nov. sp.

Shell obovate, subcordate, with the ventral margin well excurved: very pale straw color, with numerous yellowish brown linear rays, which are more or less interrupted, and which usually terminate before reaching the margin: smooth and shining, with the lines of growth very minute: beaks pro-

minent, approximate: posterior area long and narrow, well defined: lunule cordiform, defined by a well impressed line; both areas striate: margin of the interior not crenulate: anterior tooth much larger than the others. This shell belongs to a group of very closely allied species, among which are *C. inflata*, *C. albida*, *C. convexa*, &c.

Length 1.25 inch; height 1 inch; breadth .68 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

We found 8 specimens on the reef.

#### 446. *Cytherea radiata*.

##### *Synonymy*.

<i>Cytherea radiata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 23.	Feb. 1835.
—————	Hanley in Descr. Catal. p. 106.	1845?
—————	Sowb. Thes. Conch. p. 615. No. 9. pl. 128. f.	
	28–31. - - - - -	- 1851.

*Station*.—In sandy mud at a depth of 9 fathoms; Cuming! Sowerby.

*Habitat*.—Salango and Xipixapi; Cuming! Sowerby.

West Columbia; Hanley: also Jay.

Panama; C. B. A.!

2 specimens were found.

#### 447. *Cytherea squalida*.

##### *Synonymy*.

<i>Cytherea squalida</i>	Sowb. in Proc. Zool. Soc. Lond. p. 23.	Feb. 1835.
————— <i>biradiata</i>	Gray in Beech. Voy. Zool. p. 151. pl. 43. f. 5.	1839.
—————	Siebold in Wiegman. Archiv.	1839.
————— <i>squalida</i>	Sowb. Thes. Conch. p. 629. No. 61 (pars).	
	pl. 181. f. 87. (88, 89 exclus.)	- - 1851.

Mr. Sowerby (in Thes. Conch.) says that the species, as there constituted, was first named from specimens brought by Mr.

Cuming from the Philippine Islands: but there must be some error in this statement, for in Feb. 1835, Mr. Cuming had not made his collections in the Philippine Islands, and Mr. Sowerby, in the original description in Proc. Zool. Soc. at that time, gave the station and locality as we have quoted below. Consequently the name *C. biradiata* must stand as a synonym of *C. squalida*, and the shells from the Philippine Islands should be named and described as a distinct species.

*Station*.—In sandy mud, at a depth of 6 fathoms; Cuming! Sowerby.

*Habitat*.—St. Elena; Cuming! Sowerby, 1835.

Abundantly at San Blas and Mazatlan; Beechey!  
also Siebold.

California; Sowerby, 1851.

La Paz; Lt. Green! Mus. Essex Inst.

West Columbia, Mazatlan, and California; Jay.

Taboga; C. B. A.!

5 specimens were found.

#### 448. *Artemis Dunkeri*.

##### *Synonymy.*

*Cytherea Dunkeri* Phil. Abbild. I. pl. 2. f. 5. Oct. 1844.

*Artemis Pacifica* (Mus. Berol.) Trosch. in Wieg. Archiv. p. 324. 1844.

—— *Dunkeri* Reeve Conch. Icon. pl. 6. f. 34. March 1850.

*Station*.—Unknown.

*Habitat*.—Pacific shore of Mexico; Philippi: also Troschel.

St. Elena and Panama, Central America (?); Cum-  
ing! Reeve.

Pacific; Jay.

Mazatlan; Lt. Green! Gould MSS.: also Mus.  
Essex Inst.

Panama; C. B. A.!

36 specimens were found on the beach next west of Panama.



449. **Artemis saccata.***Synonymy.*

*Artemis saccata* Gould in Proc. Bost. Soc. Nat. Hist. p. 91. Nov. 1851.

*Station.*—Unknown.

*Habitat.*—Mazatlan; Lt. Green! Gould.

Panama; C. B. A.!

2 specimens were obtained.

450. **Gouldia Pacifica.** Nov. sp.

Shell subtriangular, but with the ventral margin well excurved: the color varying in different specimens from dingy white to pale brown, often tinged with red about the beaks, with some narrow rays of brown, and rarely with short irregular lines of brown: with eight to twelve stout subequal concentric ridges: sometimes radiately striated: beaks very acute and closely approximate: posterior area moderately depressed: lunule defined by a well impressed line, rising at the margin of the valves: margin of the interior not crenulate. It is closely allied to *G. parva* Ad.

Length .22 inch; height .19 inch; breadth .09 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

We collected 4 entire shells and 60 odd valves.

451. **Cyrena maritima.** Nov. sp.

Shell subtriangular, but with the ventral margin well excurved, ventricose, thin: dingy white, more or less violaceous in the posterior half: with an olivaceous coarsely striate epidermis: with well impressed striæ of growth: beaks very prominent, approximate: umbones very prominent: with a prominent posterior angle, and another less developed posterior

angle, which defines the area of the corselet: with an indistinct intermediate angle: lunule broad and deep, but not well defined: ligament large: margins thin: with all the cardinal and lateral teeth well developed, but not thick.

The dimensions of two specimens are as follows:—

Length 2 inches; height 1.75 inches; breadth 1.5 inches.

“ 2.7 “ “ 2.25 “ “ 1.95 “

*Station*.—In impalpable mud, under bushes, at high water mark, where a small stream emptied.

Some of the dead shells, which had not been moved from their station, had *Balani* growing in them.

*Habitat*.—Panama; C. B. A.!

2½ miles east of Panama 9 specimens were collected.

#### Family—TELLENIDÆ.

#### 452. *Lucina tellinoides*.

##### *Synonymy.*

*Lucina tellinoides* Reeve Conch. Icon. pl. 9. f. 56.

June 1850.

*Station*.—In sandy mud, at a depth of about 11 fathoms; Cuming! Reeve.

*Habitat*.—I. of Muerte; Cuming! Reeve.

Taboga; C. B. A.!

30 specimens were collected.

#### 453. *Capsa altior*.

##### *Synonymy.*

*Capsa altior* Sowb. in Proc. Zool. Soc. Lond. p. 196.

Dec. 1832.

— — — Müll. Syn. Test. Viv. p. 225.

May 1836.

— — — Hanley Supp. Wood Ind. Test. pl. 14. f. 34.

1845!

— — — Hanley Descr. Catal. p. 86.

1845!

*Station*.—Coarse gravel, in 12 fathoms water; and a variety,

which is smaller and higher, at a depth of 5 fathoms in thin mud; Cuming! Sowerby.

The only living specimen which we found was buried one or two inches deep in sand, on a sandy flat, near low water mark.

*Habitat*.—Gulf of Nicoya; Cuming! Sowerby: also Müller.

Tumbez (for the var. above mentioned); Cuming!

Sowerby: also Müller.

Peru and Central America; Hanley.

Punta St. Elena; Jay.

Panama; C. B. A.!

3 specimens were obtained.

#### 454. *Donax assimilis*.

##### *Synonymy*.

*Donax assimilis* Hanley in Proc. Zool. Soc. Lond. p. 17. Mar. 1845.

*Station*.—At about three quarters tide level, buried a few inches deep in sand. It is frequently used for food by the inhabitants. The regard which these mollusks have to a determinate level, was shown by a method for finding them, which was employed by a negro woman, who was seen several times collecting them. Beginning below the level where they might be found, the sand was scooped up with a calabash, in a line running up the beach, until the shells were found. Then by keeping to this level, every calabash full of sand yielded more or less of the *Donax*.

*Habitat*.—Panama; Hanley.

Mazatlan; Lt. Green! Mus. Essex Inst.

Panama; C. B. A.!

350 specimens were collected.

#### 455. *Donax gracilis*.

##### *Synonymy*.

*Donax gracilis* Hanley in Proc. Zool. Soc. Lond. p. 15. Feb. 1845.

*Station*.—Unknown.

*Habitat*.—Bay of Guayaquil, and of Caraccas, Chiriqui;  
Cuming! Hanley.

Panama; C. B. A.!

20 odd valves were taken on the beach west of Panama.

456. ***Donax navicula*.**

*Synonymy*.

*Donax navicula* Hanley in Proc. Zool. Soc. Lond. p. 15. Feb. 1845.

*Station*.—Unknown.

*Habitat*.—Gulf of Nicoya; Cuming! Hanley.

Panama; E. Jewett! Gould MSS.

Panama; C. B. A.!

3 specimens were obtained.

457. ***Donax rostratus*.** Nov. sp.

Shell elongated, inequilateral, rostrated anteriorly; ventral edge excurved along the middle, anteriorly rectilinear; anterior margin very oblique, nearly rectilinear, forming with the ventral edge a rostriform extremity: purple and dingy yellowish brown, more or less in ill defined zones; interior with the same colors not in zones: posteriorly and near the beaks smooth and shining; with rather distant very fine radiating striæ over the middle of the disc; striæ coarser anteriorly, more distant next behind and more crowded before the umbonial angle; the latter are slightly rugose: beaks small, prominent: umbones prominent; with a very sharp angle separating a concave anterior surface; within slightly radiately striated; with the anterior and ventral margins crenulated, more coarsely and deeply at the anterior extremity: with a prominent lateral tooth on each side of the cardinal teeth. It somewhat resembles *D. cardinatus* Hanley.

Length 1.6 inch; height 1.15 inch; breadth .8 inch.

*Station*.—Unknown.

*Habitat*.—Mazatlan ; Lt. Green ! Gould MSS.

Santa Barbara ; Col. Jewett ! Gould MSS.

Panama ; C. B. A. !

1 valve only was obtained.

**TELLINA.**—The number of species in this genus which occur at Panama is extraordinary : it will be seen that 19 were collected.

458. **Tellina aurora ?**

*Synonymy.*

*Tellina aurora* Hanley in Proc. Zool. Soc. Lond. p. 147. Sept. 1844.

—— ——— Hanley in Sowb. Thes. Conch. p. 301.

No. 153. pl. 58. f. 76. - - - - 1846.

*Station*.—Soft sandy mud in 10 fathoms ; Cuming ! Hanley.

*Habitat*.—Panama ; Cuming ! Hanley.

Rio Janeiro ; Jay.

Panama ; C. B. A. !

2 entire specimens were found.

Probably there is some error in Dr. Jay's statement. One of our specimens is colorless, and both of them are a little more acuminate posteriorly by the more descending slope of the dorsal margin than the specimen which is figured in the *Thesaurus*. An odd valve is less acuminate.

459. **Tellina cognata.** Nov. sp.

Shell subelliptical, solid, convex, subequilateral ; ventral margin slightly excurved ; anterior margin broadly rounded ; anterior dorsal margin nearly straight, sloping ; posterior dorsal margin slightly concave, sloping equally with the posterior dorsal ; posterior extremity somewhat obliquely and very broadly truncated ; flexure slight ; white, with a pale reddish or brownish tinge ; with excessively minute unequal radiating

striæ; with concentric crowded somewhat oblique minute striæ, which terminate much before reaching the umbonial angle, covering less than half of the posterior side, and which are also wanting near the anterior dorsal margin: beaks not very prominent: ligament short, conspicuous: lateral teeth obsolete. It is closely allied to *T. similis*, which is said to be a Caribbean species.

Length 1.75 inch; height 1.23 inch; breadth .5 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

A single valve was found.

#### 460. *Tellina Columbiensis*.

##### *Synonymy*.

*Tellina Columbiensis* Hanley in Proc. Zool. Soc. Lond.

p. 71. - - - - - Apr. 1844.

————— Hanley in Sowb. Thes. Conch. p. 307.

No. 166. pl. 65. f. 246. - - - 1846.

*Station*.—Sandy mud, 12 fathoms; Cuming! Hanley.

*Habitat*.—Monte Christi; Cuming! Hanley.

Taboga; C. B. A.!

2 specimens were found.

#### 461. *Tellina concinna*. Nov. sp.

Shell subelliptical, rather thin, convex, with the anterior side a little larger; ventral margin moderately excurved; anterior margin broadly rounded; anterior dorsal margin a little excurved, moderately sloping; posterior dorsal margin nearly straight, sloping equally with the anterior dorsal margin; posterior extremity somewhat obliquely and very broadly truncated; flexure slight: shining, snow-white, with a slight tinge of pink in the middle; with very unequal, and, for the most

part, very fine concentric striæ, which are much coarser posteriorly; with excessively minute unequal radiating striæ: beaks not very prominent: ligament short, conspicuous: lateral teeth obsolete.

Length 1.6 inch; height 1.02 inch; breadth .47 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

3 fine specimens were obtained.

#### 462. *Tellina crystallina*.

##### *Synonymy*.

<i>Tellina crystallina</i>	(Chem. XL 210. f. 1947–8; teste Hanley)	
—————	(Wood. Ind. Test. pl. 3. f. 10; teste Hanley)*	
—————	Wood. Gen. Conch. p. 149.	1835.
—————	Hanley Descr. Catal. p. 66.	1845 †
—————	Hanley in Sowb. Thes. Conch. I. 270.	
	pl. 57. f. 43. - - - - -	1846.

*Station*.—Unknown.

*Habitat*.—St. Elena; Hanley.

Panama; C. B. A.!

We obtained only 1 valve.

#### 463. *Tellina Cumingii*.

##### *Synonymy*.

<i>Tellina Cumingii</i>	Hanley in Proc. Zool. Soc. Lond. p. 59.	Apr. 1844.
—————	Hanley in Sowb. Thes. Conch. p. 223.	
	No. 3, pl. 58. f. 72. - - - - -	1846.

*Station*.—In coral sand; Cuming! Hanley.

*Habitat*.—Guacomayo; Cuming! Hanley.

Panama; C. B. A.!

We found only 1 entire shell and 1 single valve.

\* We have not had an opportunity of consulting Chemnitz and Wood's Index since this species was determined.

464. **Tellina Dombeyi.***Synonymy.*

- Tellina Dombeyi* Hanley in Proc. Zool. Soc. Lond. p. 144. Aug. 1844.  
 ———— Hanley in Sowb. Thes. Conch. p. 323.  
 No. 199. pl. 62. f. 182. - - - - 1846.

*Station.*—In sandy mud, 12 fathoms; Cuming! Hanley.

*Habitat.*—Panama; Cuming! Hanley.

Panama; Jay.

Panama; C. B. A.!

12 specimens were collected.

465. **Tellina felix.***Synonymy.*

- Tellina felix* Hanley in Proc. Zool. Soc. Lond. p. 71. Apr. 1844.  
 ———— Hanley in Thes. Conch. p. 281. No. 110. pl. 57.  
 fig. 52. - - - - 1846.

*Station.*—Sandy mud, 6 to 10 fathoms; Cuming! Hanley.

*Habitat.*—Panama; Cuming! Hanley.

Panama; C. B. A.!

We collected 36 odd valves on the beach west of Panama.

466. **Tellina laceridens.***Synonymy.*

- Tellina laceridens* Hanley in Proc. Zool. Soc. Lond. p. 61. Apr. 1844.  
 ———— Hanley in Thes. Conch. p. 243. No. 40. pl.  
 61. f. 168. 176. - - - - 1846.

*Station.*—Sandy mud, 3 to 5 fathoms; Cuming! Hanley.

*Habitat.*—Tumbez and Chiriqui; Cuming! Hanley.

West Columbia; Jay.



Panama; C. B. A.!

7 specimens were collected on the sand beaches.

467. **Tellina prora.**

*Synonymy.*

*Tellina prora* Hanley in Proc. Zool. Soc. Lond. p. 61. Apr. 1844.  
 ——— ——— Hanley in Sowb. Thea. Conch. p. 243. No. 39.  
 pl. 60. f. 152. - - - - - 1846.

*Station.*—Sandy mud, 6 to 9 fathoms; Cuming! Hanley.

*Habitat.*—St. Elena and Salango; Cuming! Hanley.

Salango; Jay.

Panama; C. B. A.!

A single valve was found.

468. **Tellina puella.** Nov. sp.

Shell elongate, rather solid, convex, moderately inequilateral; ventral margin slightly excurved, posteriorly straight; anterior margin broadly rounded; anterior dorsal margin slightly excurved; posterior dorsal margin straight, rapidly sloping to an acute posterior extremity; flexure moderate: white, more or less deeply tinged with red, mostly near the margin: shining; with excessively minute concentric striæ, and some faint microscopic radiating striæ: beaks not very prominent: ligament small: lateral teeth well developed.

Length .9 inch; height .53 inch; breadth .28 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

12 odd valves were collected.

469. **Tellina rubescens.**

*Synonymy.*

*Tellina rubescens* Hanley in Proc. Zool. Soc. Lond. p. 60. Apr. 1844.

*Tellina rubescens* Hanley in Sowb. Thes. Conch. p. 242. No.

38. pl. 60. f. 153. - - - - 1846.

*Station*.—In sandy mud; Cuming! Hanley.

*Habitat*.—Panama and Tumbez; Cuming! Hanley.

Tumbez; Jay.\*

Panama; C. B. A.!

2 specimens were found.

470. ***Tellina siliqua***. Nov. sp.

Shell elongate, subelliptic, very thin, very convex, very inequilateral; ventral margin nearly straight; anterior margin well rounded; anterior dorsal margin slightly excurved, moderately sloping; posterior dorsal margin straight or concave, sloping to a small subtruncate posterior extremity; flexure great: pure white: with excessively minute concentric striæ: beaks acute: ligament small: cardinal teeth small; lateral teeth wanting. Dr. Gould suggested the very appropriate name which we have adopted.

Length .7 inch; height .4 inch; breadth .3 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was found.

471.—***Tellina simulans***. Nov. sp.

*Synonymy*.

*Tellina punicea* (pars) Hanley in Sowb. Thes. Conch. I. 239. 1846.

Shell subovate, solid, moderately convex, nearly inequilateral; ventral margin slightly excurved; anterior margin well rounded; anterior dorsal margin slightly excurved; posterior dorsal margin nearly straight, sloping; posterior extremity obliquely truncated; flexure slight: white, more or less deeply tinged with rose color except near the margin and around the

pure white beaks; within of a very deep red: shining; with deep crowded regular concentric sulci, which are of equal depth at both extremities: beaks prominent: ligament short, conspicuous: with a long posterior dorsal area well defined by an angle: lateral teeth nearly obsolete. The difference between this shell and *T. punicea* is slight: its furrows are deeper and are continued over the flexure without change of depth; the interspaces are less flattened, and the lateral teeth are nearly obsolete.

Length 1.13 inch; height .7 inch; breadth .3 inch.

*Station*.—In sandy mud at 10 fathoms: Cuming! Hanley.

*Habitat*.—Xipixapi; Cuming! Hanley.

Panama; C. B. A.!

1 valve was found.

#### 472. *Tellina sincera*.

##### *Synonymy*.

*Tellina sincera* Hanley in Proc. Zool. Soc. Lond. p. 68. Apr. 1844.

——— Hanley in Thes. Conch. p. 261. No. 70.

pl. 60. f. 144. - - - - - 1846.

*Station*.—Unknown.

*Habitat*.—N. W. Coast of America (Dr. Sinclair); Hanley in Thesaurus.

Panama; C. B. A.!

15 specimens were obtained on the beach west of the town.

#### 473. *Tellina vicina*. Nov. sp.

Shell very short, subovate, solid, convex, subequilateral; ventral margin well excurved, sometimes slightly incurved near the flexure; anterior margin broadly rounded; anterior and posterior dorsal margins nearly straight, sloping; posterior extremity subtruncated; flexure moderate: dingy white, sometimes tinged with yellowish brown; sometimes deep red, with

a tinge of blue or grey; some whitish specimens are ornamented with bluish purple zigzag lines on the umbones, or with a short ray of the same color before the beaks: with deep unequal crowded concentric striæ: beaks prominent: ligament short, conspicuous: lateral teeth rather small. This species is closely allied to *T. bimaculata*, and has similar varieties of coloring, but is larger, higher, and has coarser striæ.

Length .95 inch; height .78 inch; breadth .4 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

10 specimens were collected.

474. **Tellina** ———. Sp. indet. *a*.

1 valve, obtained near Panama, resembles an overgrown *T. elongata* Hanley, which species Mr. Cuming found at Chiriqui: but the figure of that species in Sowb. Thes. represents the umbonial angles as concave upwards, but in this shell they are convex upwards, and consequently the posterior area is less. Our specimen is more than 3 inches long.

475. **Tellina** ———. Sp. indet. *b*.

A long elliptic plain white shell; 1 valve was found near Panama.

476. **Tellina** ———. Sp. indet. *c*.

Like *T. puella*, but less rostrate and more deeply striate; 5 odd valves were found near Panama.

Family—PETRICOLIDÆ.

477. **Petricola cognata**. Nov. sp.

Shell pholas-shaped, inequilateral: dingy white: in the upper posterior area with very fine crowded radiating equal

striae; in the lower posterior area with unequal fine raised radiating lines; in the anterior half with radiating ribs, which are ornamented with small thick vaulted scales; beaks small, prominent: umbones prominent, somewhat flattened: lunule defined by the anterior ribs, a little depressed: ventral margin scalloped anteriorly. It is allied to *P. pholadiformis* Lam.

Length .92 inch; height .42 inch; breadth .44 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 specimen was obtained.

#### 478. *Saxicava tenuis*?

##### *Synonymy*.

*Saxicava tenuis* (?) Sowb. in Proc. Zool. Soc. Lond. p. 88. Aug. 1834.

The description of this species is too meagre to enable us to identify our shell confidently.

*Station*.—In soft stones near half tide level.

*Habitat*.—Pacosmayo and Lambeyeque; Cuming! Sowerby.  
Panama; C. B. A.!

1 specimen was found in the same stone with *Modiola*, sp. indet. *a*.

#### Family—MACTRIDÆ.

#### 479. *Cumingia coarctata*.

##### *Synonymy*.

*Cumingia coarctata* Sowb. Gen. pl. —. f. 4.

————— Sowb. in Proc. Zool. Soc. Lond. p. 34. Mar. 1833.

————— Reeve Conch. Syst. pl. 49. f. 4. Sept. 1841.

————— Hanley Supp. Wood Ind. Test. pl. 12. f. 37. 1845!

*Station*.—Sandy, muddy bottom, 7 fathoms water; Cuming! Sowerby.

*Habitat*.—Bay of Caraccas; Cuming! Sowerby.

Panama; C. B. A. !

4 specimens were obtained.

480. **Cumingia trigonularis.**

*Synonymy.*

*Cumingia trigonularis* Sowb. in Proc. Zool. Soc. Lond. p. 35. Mar. 1833.

————— Sowb. Gen. pl. —. f. 2.

————— Reeve Conch. Syst. pl. 49. f. 2. Sept. 1841.

*Station*.—Among stones in deep water; Cuming! Sowerby.

*Habitat*.—St. Elena: Cuming! Sowerby.

Panama; C. B. A. !

3 specimens were found.

481. **Cumingia** ———. Sp. indet. *a*.

4 specimens were obtained near Panama.

482. **Cumingia** ———. Sp. indet. *b*.

1 specimen was obtained near Panama.

483. **Cumingia** ———. Sp. indet. *c*.

1 valve was found near Panama.

484. **Cumingia** ———. Sp. indet. *d*.

1 specimen was found near Panama.

The above are probably new species of *Cumingia*; but as their characters are probably somewhat variable, more specimens are requisite for good descriptions.

485. **Amphidesma bicolor.** Nov. sp.

Shell elliptical, scarcely flexuous, inequilateral, the posterior side being larger; with the posterior dorsal margin a little con-

cave, otherwise with all the margins well rounded: purple near the beaks, otherwise dingy white: interior similarly colored, but with the purple region larger: smooth near the beaks, otherwise with fine raised concentric lines, and crowded radiating striæ, which are mostly microscopic, and which posteriorly are divergent and wholly microscopic; beaks small, prominent: umbones convex.

Length .85 inch; height .74 inch; breadth .42 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

Only 1 valve was found.

#### 486. *Amphidesma ellipticum*?

##### *Synonymy.*

*Amphidesma ellipticum* Sowb. in Proc. Zool. Soc. Lond.

p. 200. - - - - Dec. 1832.

————— Hanley Descr. Catal. p. 45. 1845†

*Station*.—Dredged at a depth of 9 fathoms in sandy mud; Cuming! Sowerby.

*Habitat*.—Monte Christi; Cuming! Sowerby.

West Columbia; Hanley.

Panama; C. B. A.!

We obtained 20 specimens on the reef at low water mark. Most of them are in fine condition, although none were taken alive.

#### 487. *Amphidesma proximum*. Nov. sp.

Shell suborbicular, slightly flexuous, a little inequilateral, with the anterior dorsal margin concave, with the posterior dorsal margin a little excurved, subtruncated posteriorly, otherwise with the margins well rounded: snow white, with a thin slate or umber-colored epidermis: centrally and anteriorly with very fine rather distant raised lines; with extremely minute

radiating striæ over the whole surface: beak small, approximate: left umbo more convex than the right one: corselet and lunule long and narrow, concave. It is closely allied by varieties to *A. ellipticum* Sowb.: it corresponds mostly to the descriptions of *A. lenticulare* Sowb., but the figures of that species in Sowb. Conch. Ill. and Hanley App. Wood Ind. appear to represent a distinct species.

Sometimes the shell is tinged with brownish orange near the beaks and middle portion, especially in the interior. In some specimens the inner surface within the pallial line is finely and deeply punctated, and the deep pallial sinus is marked with striæ radiating from the opening of the sinus.

Length 1.8 inch; height 1.58 inch; breadth .82 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A. 1

18 specimens were taken on the reef at low water mark.

#### 488. *Amphidesma pulchrum*.

##### *Synonymy*.

<i>Amphidesma pulchrum</i>	Sowb. in Proc. Zool. Soc. Lond. p. 57.	Mar. 1832.
—————	Müll. Syn. Test. Viv. p. 221.	May 1836.
—————	Sowb. Conch. Ill. No. 2. pl. 17. f. 2.	1841.
—————	Reeve Conch. Syst. pl. 47. f. 2.	Sept. 1841.
—————	Hanley Supp. Wood Ind. Test. pl. 12. f. 6.	1845 ?
—————	Hanley Descr. Catal. p. 45.	1845 ?
—————	Orb. Voy. Amer. Merid. Moll. p. 534.	1846.

*Station*.—Unknown.

*Habitat*.—Bay of Caraccas; Cuming! Sowerby in Proc. Zool. Soc.: also Müller.

Bay of Caraccas; Orbigny.

St. Elena and Panama; Cuming! Sowerby in Conch. Ill.

S. America; Hanley.



St. Elena; Jay.

Panama; C. B. A.!

We found 4 specimens.

489. **Amphidesma striosum.** Nov. sp.

Shell elliptical, slightly flexuous, inequilateral; with the posterior dorsal margin slightly excurved, with the anterior dorsal margin concave, otherwise with the margins well rounded: pale yellowish brown: with numerous fine raised concentric lines, and closely crowded radiating striæ, which are mostly microscopic: beaks small, approximate: umbones convex: corselet and lunule not well defined.

Length .78 inch; height .71 inch; breadth .33 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

1 specimen was found.

490. **Amphidesma tortuosum.** Nov. sp.

Shell compressed, subequilateral, triangular above, orbicular below, the slightly excurved posterior dorsal margin and the slightly concave anterior dorsal margin meeting at an angle of about 125°, and the rest of the margins being well rounded; posterior side very flexuous, with a broad deep groove on the left valve and a corresponding ridge on the right valve: dingy white: with numerous concentric ridges, which are crossed by radiating striæ that are partly microscopic: beaks very minute, approximate: left umbo flat, right one convex: corselet and lunule long and narrow, deeply concave.

Length 1.25 inch; height 1.1 inch; breadth .35 inch.

*Station.*—Unknown.

*Habitat.*—Panama; C. B. A.!

1 specimen was obtained.

491. **Amphidesma ventricosum.** Nov. sp.

Shell suborbicular, subequilateral, ventricose, flexuous; with the anterior and posterior dorsal margins nearly straight; with the margins otherwise well rounded: dingy white, brownish in ill-defined zones: with unequal striæ of growth; densely covered with radiating microscopic striæ: beaks small, approximate: umbones very convex: corselet and lunule not very well defined.

Length .7 inch; height .62 inch; breadth .36 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

A single valve only was found.

492. **Crassatella gibbosa.***Synonymy.*

<i>Crassatella gibbosa</i>	Sowb. in Proc. Zool. Soc. Lond. p. 56.	Mar. 1832.
————	Müll. Syn. Test. Viv. p. 212.	May 1836.
————	Reeve Conch. Syst. I. pl. 44. f. 2.	Sept. 1841.
• ————	Reeve Conch. Icon. pl. 1. f. 1.	Jan. 1843.
————	Hanley Supp. Wood Ind. Test. pl. 12. f. 16.	1845 ?
————	Hanley Descr. Catal. p. 37.	1845 ?
————	Chenu Ill. Conch. pl. 2. f. 6, 12.	
————	Orb. Voy. Amer. Merid. Moll. p. 578.	1846.

*Station*.—Sandy mud, 11 fathoms; Cuming! Sowerby: also Reeve.

*Habitat*.—St. Elena and Xipixapi; Cuming! Sowerby: also Müller: also Orbigny: also Reeve.

Payta; Fontaine! Orbigny.

S. America; Hanley.

Punta St. Elena; Jay.

Panama; C. B. A.!

Only 1 valve was obtained.

493. **Mulinia donaciformis.***Synonymy.*

- Mulinia donaciformis* Hanley Descr. Catal. p. 35. 1845 ?  
 ————— Hanley Supp. Wood. Ind. Test. pl. 10. f. 29. 1845 ?

This species, according to Hanley, was described by Gray in Mag. Nat. Hist. 1837, and figured in Zool. Beech. Voy. pl. 44. f. 13, 1839; but not having these books before us since our specimens were determined, we have not verified these references.

*Station.*—Unknown.

*Habitat.*—South Seas; Hanley.

Panama; Col. Jewett! Gould MSS.

Panama; C. B. A.!

14 specimens were collected on the beach west of Panama.

494. **Mulinia ventricosa.***Synonymy.*

- Lutraria ventricosa* Gould Proc. Bost. Soc. Nat. Hist. IV. 89. Nov. 1851.

*Station.*—Unknown.

*Habitat.*—Mazatlan; Lt. Green! Gould.

Panama; C. B. A.!

3 specimens were collected on the beach west of Panama.

495. **Lutraria elegans.***Synonymy.*

- Mactra elegans* Sowb. in Tank. Catal. No. 116. App. p. 2. pl. 1. f. 3. 1825.  
 ————— Desh. in Lam. An. sans Vert. VI. 107. 1835.  
 ————— Hanley Descr. Catal. p. 33. 1845 ?  
 ————— Hanley Supp. Wood. Ind. Test. pl. 11. f. 16. 1845 ?

*Station.*—Unknown.

*Habitat.*—Unknown; Sowerby: also Deshayes.

Florida; Hanley.

Panama; C. B. A.!

We collected 6 odd valves of this rare and elegant shell. *L. canaliculata* Say is the Atlantic analogue. Dr. Gould has shown us his *L. undulata*, which is quite distinct from either species. Mr. Hanley must be in error as to the habitat of the species. Its Atlantic analogue inhabits Florida, but is not likely to have been confounded with this shell.

496. **Mactra velata.**

*Synonymy.*

*Mactra velata* Phil in Zeitschr. Mal. p. 153. No. 10 for 1848. Mar. 1849.  
 ——— ——— Phil. Abbild. III. pl. 3. f. 5. Nov. 1850.

This shell attains a length of 4 inches. A small variety (*a*) has the posterior dorsal outline much less excurved. It may possibly be a distinct species. Col. Jewett's specimens belong to this type.

*Station.*—Unknown.

*Habitat.*—Panama; E. B. Philippi! Philippi.

Panama; Troschel.

Panama; Col. Jewett! Gould MSS.

Panama; C. B. A.!

10 specimens were found on the reef.

Family—CORBULIDÆ.

497. **Anatina alta.** Nov. sp.

Shell ovate, short; anteriorly subangular and flexuous; otherwise with the margins well rounded: pearl-white, with a thin brownish epidermis: with unequal striæ of growth; surface microscopically sagriate: beaks small, prominent, approximate: umbones moderately convex: spoon-shaped tooth followed by a well rounded deep sinus under the beak.

Length 1.98 inch; height 1.35 inch; breadth .7 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

1 valve only was found.

498. **Pandora cornuta.** Nov. sp.

Shell elongate, ovate, very inequilateral, the posterior part being much longer and higher; dorsal margin nearly straight, posteriorly sharply rostriform; posterior margin much excavated next beneath the rostriform projection; ventral margin well rounded: pearl-white: with some unequal striæ of growth; right valve with a prominent angle extending from the beak to the middle of the sinus of the posterior margin; left valve with a corresponding depressed angle: beaks indistinct: umbones slightly and almost equally convex.

Length .7 inch; height .42 inch; breadth .11 inch.

We adopt the appropriate name suggested by Dr. Gould.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

Only 1 specimen was found.

499. **Potamomya æqualis.** Nov. sp.

Shell subovate, nearly equilateral, slightly inequivalve; with the margin subangulated posteriorly, otherwise well rounded: white beneath a pale brown epidermis: with unequal striæ of growth; posteriorly with an umbonial angle not very prominent: beaks small: right umbo very prominent, both somewhat compressed: tooth rather small; teeth of the left valve with a medial ridge.

Length .78 inch; height .66 inch; breadth .42 inch.

*Station*.—In soft impalpable mud, under a mangrove thicket, near high water mark, and near the outlet of a small stream, with *Arca tuberculosa*.

*Habitat*.—Panama; C. B. A. 1

1 specimen was obtained about 2½ miles east of Panama.

500. **Potamomya inflata.** Nov. sp.

Shell ovate, ventricose, inequilateral, moderately inequivalve; posterior margin subtruncated between the extremities of two umbonial angles, of which the upper one is indistinct; ventral margin moderately excurved; anterior margin abruptly and regularly rounded: white beneath a pale brown epidermis: with unequal striæ of growth: beaks small: umbones very prominent, somewhat compressed: teeth small; tooth of the left valve with a medial ridge.

Length .7 inch; height .57 inch; breadth .5 inch.

A less ventricose variety has the following dimensions:

Length .6 inch; height .46 inch; breadth .33 inch.

*Station*.—With *P. æqualis*, q. v.

*Habitat*.—Panama; C. B. A. 1

3 specimens were obtained with *P. æqualis*.

501. **Potamomya trigonalis.** Nov. sp.

Shell solid, triangular, moderately inequivalve, subequilateral; upper posterior margin moderately excurved, forming an angle with the slightly excurved ventral margin; anteriorly with the dorsal margin abruptly and regularly rounded into the ventral margin: white beneath a pale brown epidermis: with fine striæ of growth; with a sharp umbonial angle defining a posterior area: beaks large and prominent: umbones prominent, somewhat compressed: teeth large and robust; tooth of the left valve with a medial ridge.

Length .95 inch; height .8 inch; breadth .56 inch.

*Station*.—With *P. æqualis*, q. v.

*Habitat*.—Panama; C. B. A. 1

2 specimens were obtained.

502. *Corbula bicarinata*.*Synonymy.*

<i>Corbula bicarinata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 35.	Mar. 1833.
—————	Müll. Syn. Test. Viv. p. 229.	May 1836.
—————	Reeve Conch. Icon. pl. 3. f. 23.	Jan. 1844.
—————	Hanley Supp. Wood Ind. Test. pl. 12. f. 31.	1845?
—————	Hanley Descr. Catal. p. 46.	1845?
—————	Orb. Voy. Amer. Merid. Moll. p. 571.	1846.

*Station*.—In sandy mud, at the depth of from 7 to 17 fathoms; Cuming! Sowerby: also Reeve.

Our specimens were found under stones, which were sunk deep in sand, a little above low water mark.

*Habitat*.—Panama, Real Llejos, Caraccas, St. Elena, &c.; Cuming! Sowerby: also Müller: also Orbigny: also Reeve.

West Columbia; Hanley; also Jay.

Panama; C. B. A.!

260 specimens were collected on the reef.

503. *Corbula biradiata*.*Synonymy.*

<i>Corbula biradiata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 35.	Mar. 1833.
—————	Müll. Syn. Test. Viv. p. 230.	May 1836.
—————	Reeve Conch. Icon. pl. 1. f. 3.	Aug. 1843.
—————	Hanley Supp. Wood Ind. Test. pl. 10. f. 51.	1845?
—————	Hanley Descr. Catal. p. 47.	1845?
—————	Orb. Voy. Amer. Merid. Moll. p. 571.	1846.

*Station*.—In sand and mud, at the depth of from 3 to 7 fathoms; Cuming! Sowerby; also Reeve.

*Habitat*.—Chiriqui and Bay of Caraccas; Cuming! Sowerby: also Müller: also Orbigny: also Reeve.

Caraccas; Hanley.

West Columbia; Jay.

Panama; C. B. A.!

1 entire specimen and 8 odd valves appear to be the shell described as above. 2 entire specimens and 10 odd valves of a beautiful variety were also obtained.

504. **Corbula obesa.**

*Synonymy.*

<i>Corbula obesa</i>	Hinds in Proc. Zool. Soc. Lond. p. 57.	May 1843.
— — —	Reeve Conch. Icon. pl. 5. f. 38.	May 1844.
— — —	Hinds Zool. Voy. Sulph. Moll. p. 68. pl. 20. f. 12.	1844.

*Station.*—Mud, at the depth of 22 to 33 fathoms; Hinds! also Reeve.

*Habitat.*—West coast of America, between 8° 57' and 21° 32' N. lat., Panama, Veragua, San Blas, &c.; Hinds! also Reeve.

San Blas; Jay.

Panama; C. B. A.!

6 odd valves were found.

505. **Corbula ovulata.**

*Synonymy.*

<i>Corbula ovulata</i>	Sowb. in Proc. Zool. Soc. Lond. p. 35.	Mar. 1833.
— — —	Müll. Syn. Test. Viv. p. 230.	May 1836.
— — —	Reeve Conch. Icon. pl. 1. f. 7.	Aug. 1843.
— — —	Hanley Descr. Catal. p. 47.	1845!
— — —	Hanley Supp. Wood Ind. Test. pl. 10. f. 52.	1845!
— — —	Orb. Voy. Amer. Merid. Moll. p. 571.	1846

*Station.*—In sandy mud, at various depths from 7 to 17 fathoms; Cuming! Sowerby: also Reeve.

*Habitat.*—Xipixapi and Bays of Montijo and Caraccas: Cuming! Sowerby: also Müller: also Orbigny: also Reeve.

On the sands at Real Llejos and Mazatlan, a few



odd valves, of a clear pink color, were picked up;  
Cuming! Sowerby: also Reeve.

S. America; Hanley.

Taboga; C. B. A.!

6 odd valves and 1 entire specimen were found. The latter is of extraordinary size and thickness. Its dimensions are—length 1.22 inch; height .81 inch; width .68 inch: it weighs  $\frac{2}{3}$  oz. On and around the umbones, it is of a clear pink color.

506. **Corbula rubra.** Nov. sp.

Shell subovate, moderately inequivalve and inequilateral, posteriorly acuminate, with the ventral margin arcuate, anteriorly rounded: rufous, with a short white ray on the anterior side of the umbo, and a dark red spot before it: with fine concentric striæ, decussated by radiating microscopic striæ: beaks not very prominent: umbones prominent, somewhat angulated on both sides near the beaks: teeth small. Our unique specimen has a broad flexure a little behind the middle; but this may be an accidental growth.

Length .31 inch; height .19 inch; breadth .14 inch.

Station.—Unknown.

Habitat.—Panama; C. B. A.!

Only 1 specimen was obtained.

507. **Corbula tenuis.** Nov. sp.

*Synonymy.*

<i>Corbula tenuis</i> Sowb. in Proc. Zool. Soc. Lond. p. 36.	Mar. 1836.
——— Müll. Syn. Test. Viv. p. 231.	May 1836.
——— Reeve Conch. Icon. pl. 2. f. 13.	Sept. 1843.

Station.—Sandy mud, at the depth of 12 fathoms; Cuming! Sowerby: also Reeve.

Habitat.—Bay of Montijo; Cuming! Sowerby: also Müller:  
also Reeve.

Mazatlan; E. Jewett! Gould MSS.

Panama; C. B. A.!

Of this species, hitherto unique in the Cumingian collection, we obtained only 1 specimen of the convex valve. Col. Jewett also brought a convex valve to Dr. Gould, and retained another odd valve from Mazatlan.

508. **Corbula** ——. Sp. indet. *a*.

This species has some resemblance to *C. Taheitensis*. We obtained at Panama but 1 valve, which is probably immature.

509. **Corbula** ——. Sp. indet. *b*.

Two left valves were obtained at Panama.

Family—SOLENIDÆ.

510. **Solecurtus affinis**. Nov. sp.

Shell much elongated, compressed cylindric, well rounded at both extremities; ventral edge straight or slightly arcuated: white beneath a deep yellowish brown epidermis: with unequal striæ of growth: beaks not prominent, a little behind the middle of the shell: umbones compressed along the middle: ligament broad, with stout nymphæal callosities: teeth small, one in the left, and two in the right valve. This is the analogue of *S. Caribæus*.

Length 2.25 inches; height .8 inch; breadth .55 inch.

*Station*.—Unknown.

*Habitat*.—Panama; C. B. A.!

10 specimens were collected.

511. **Solen rudis**. Nov. sp.

Shell solid, straight or slightly recurved; with the posterior extremity abruptly truncated nearly perpendicularly; anteriorly with very thick rounded margins: white beneath a brown deciduous epidermis, which is produced much beyond the margins: with only indistinct striæ of growth on the shell; with some radiating lines on the epidermis: beaks inconspicu-

ous, at one seventh of the length from the anterior extremity : ligament large, with stout nymphæal callosities : teeth large in old shells.

Length 5.8 inches ; height 1.3 inch ; breadth 1 inch.

*Station*.—In coarse sand, among stones, near low water mark.

*Habitat*.—Panama ; C. B. A. !

55 specimens were collected on the reef. It is an edible species, and many of our specimens were obtained from the natives, who were digging them for food.

#### Family—PHOLADIDÆ.

#### 512. *Pholas crucigera*.

##### *Synonymy*.

<i>Pholas crucigera</i>	Sowb. in Proc. Zool. Soc. Lond. p. 69.	July 1834.
— <i>cruciger</i>	Müll. Synop. Nov. Test. Viv. p. 236.	May 1836.
— ———	Orb. Voy. Amer. Merid. Moll. p. 499.	1843.
— <i>crucigera</i>	Hanley Supp. Wood Ind. Test. pl. 11.	
	f. 53. - - - - -	1845 ?
— ———	Hanley Descr. Catal. p. 6.	1845 ?
— ———	Sowb. Thes. Conch. Index.	1849.
— <i>crucifera</i>	Sowb. Thes. Conch. p. 489. No. 13. pl.	
	104. f. 24-6. - - - - -	1849.
— <i>crucigera</i>	Phil. Abbild. III. pl. II. f. 4. - - -	Nov. 1850.

*Station*.—In soft sandstone at half tide ; in soft stone at low water ; in hard clay at the depth of 13 fathoms ; Cuming ! Sowerby.

*Habitat*.—I. of Puna, Bay of Caraccas, and Gulf of Nicoya ; Cuming ! Sowerby : also Müller.

Central America ; Hanley : also Orbigny : also Jay.

Panama ; C. B. A. !

1 specimen was found.

513. **Pholas tubifera.***Synonymy.*

<i>Pholas tubifera</i> Sowb. in Proc. Zool. Soc. Lond. p. 71.	July 1834.
——— ——— Müll. Synop. Nov. Test. Viv. p. 238.	May 1836.
——— ——— Orb. Voy. Amer. Merid. Moll. p. 499.	1843.
——— ——— Hanley Descr. Catal. p. 8.	1845 ?
——— ——— Sowb. Thes. Conch. p. 499. No. 41. pl.	
106. f. 64, 65. — — — — —	1849.

*Station.*—In decayed wood, dredged up at 10 fathoms' depth; Cuming! Sowerby.

*Habitat.*—Bay of Caraccas; Cuming! Sowerby: also Müller.  
Payta; Fontaine! Orbigny.  
West Columbia; Hanley: also Jay.  
Panama; C. B. A.!

1 specimen was found.

514. **Pholas xylophaga.** (Val. non Desh. et al.)*Synonymy.*

<i>Penitella xylophaga</i> (?) Val. Voy. Venus Moll. pl. 24. f. 2.	1846.
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*Station.*—Boring in wood, near high water mark.

*Habitat.*—Panama; C. B. A.!

20 specimens were taken from the bottom of an old "dug-out,"\* on the rocks near the sea wall. The bottom of the canoe was filled with this mollusk.

515. **Pholas** ———. Sp. indet. *a.*

2 right valves were found near Panama. It resembles *P. lanceolata* Orb.

516. **Pholas** ———. Sp. indet. *b.*

1 partially decayed valve was found near Panama. This is probably an undescribed species.

\* A large canoe made of the trunk of a tree.

## Class—BRACHIOPODA.

517. *Orbicula Cumingii*.*Synonymy.*

<i>Orbicula Cumingii</i>	Brod. in Proc. Zool. Soc. Lond. p. 125.	Nov. 1833.
—————	Brod. in Trans. Zool. Soc. Lond. I. 143,	
	pl. 23. f. 1. - - - - -	1835.
—————	Brod. in Ann. des Sc. Nat. p. 29. pl. 2. f. 1.	1835.
—————	Müll. Syn. Test. Viv. p. 175.	1836.
—————	Lam. An. sans Vert. VII. 317. No. 3.	
	(Desh. ed.) - - - - -	1836.
—————	Lam. An. sans Vert. III. Pt. I. p. 118.	
	No. 3. (Desh. ed. tert.) - - - - -	1841.
—————	Sowb. Thes. Conch. p. 366. No. 4.	
	pl. 73. f. 6. - - - - -	1846.
—————	Orb. Voy. Amer. Merid. Moll. p. 677.	1846.

*Station.*—Attached to the lower sides of stones, in sandy mud, at low water, and in some instances at a depth of 6 fathoms; Cuming! Broderip.

Our specimens were also found at low water mark, attached to the under side of stones.

*Habitat.*—Payta, St. Elena, and Panama; Cuming! Broderip; also Sowerby.

Payta and St. Elena; Cuming! Orbigny.

Seas of Chili and of Peru; Deshayes.

Panama; C. B. A. !

50 specimens were collected on the reef.

# SPECIERUM NOVARUM CONCHYLIIORUM,

IN SINU PANAMENSI REPERTORUM,

## SYNOPSIS.

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**OVULA NEGLECTA.** O. t. gracili: rubrâ, labro pallido: lævi, vel exilissimè spiraliter striatâ: aperturâ suprâ angustâ, infrâ latiore, utrinque rostratâ: labro crasso, medio recto: columellâ utrinque acuminatâ, lineâ longitudinali impressâ et callo instructâ. Long. 7.8 millim., lat. 2.5 millim.

**OVULA VARIABILIS.** O. t. gracillimâ: albidâ, vel subrufâ, labro albo: interdum rubro-purpureâ: lævi: aperturâ subangustâ, emarginatâ, infrâ haud multum latiore, suprâ effusâ, haud multum productâ: labro crasso: columellâ longitudinaliter carinatâ, suprâ subbiplicatâ. Long. 13'''7: lat. 3'''8.

**MARGINELLA MINOR.** M. t. ovatâ: albidâ, diaphanâ: tenui, lævi: spirâ haud multum elevatâ: anfr. circa 3, suturâ inconspicuâ: aperturâ lineari: labro crasso, spiram adnato: columellâ plicis duobus magnis, unâ parvâ, interdum alterâ obsoletâ, instructâ. Long. 2'''3: lat. 1'''6.

**MITRA SOLITARIA.** M. t. gracili, fusiformi: atro-fuscâ, plicis pallidis: costis transversis, parvis, plurimis, infrâ obsoletis, et striis spiralibus, suprâ exilioribus, intersectionibus granulatis: apice acutâ: anfr. 10, subconvexis, suturâ subimpressâ: aperturâ longâ, canali brevi: labro crasso, intus plicis acutis plurimis instructo, suprâ sinuato: columellâ quadripliatâ. Long. 17'''3; lat. 5'''7; apert. long. 8'''6.

**OLIVA INCONSPICUA.** O. t. gracili: albidâ: lævi: spirâ aperturam subæquante: apice subobtusâ: anfr. 6, suturâ conspicuâ: aperturâ suprâ acuminatâ, latè sed non profundè emarginatâ: labro tenui. Div. 30° ad 40°: long. 3'''8; lat. 1'''4.

**NASSA CANESCENS.** N. t. subelongatâ, ovato-conicâ: pallidè fuscâ, ad costarum interstitia canescente: costis angustis, 10 vel 11; lineis elevatis spiralibus haud interruptis plurimis: spirâ subconicâ: apice acutâ: anfr. 8 vel 9, mediis subangulatis; suturâ conspicuâ: labro subacuto, a varice crasso firmato: labio exilè rugoso: aperturâ latè et profundè emarginatâ. Div. 50°; long. 26'''7; lat. 15'''2; spiræ long. 15'''2.

**NASSA COLLARIA.** N. t. ovato-conică : albidă, fasciis fuscis nigrescentibus duobus ornată : costis 10 vel 12, prope labrum minoribus et crebrioribus ; lineis elevatis spiralibus pluribus ; intersectionibus subnodulosis : spiră subconică : apice acută : anfr. 7. subconvexis ; sutură conspicuă : labro subacuto, a varice crasso firmato, intus crenulato : apertură profundē emarginatā. Div.  $50^{\circ}$  ; long.  $7'''$ .8 ; lat.  $5'''$ .3 ; spiræ long.  $15'''$ .8.

**NASSA CORPULENTA.** N. t. ovato-conică, ventricosă : fusco et albo spiraliter fasciată ; apertură albă : costis angustis 11, a lineis elevatis spiralibus trajectis : spiră conică : apice acută : anfr. 9, subconvexis ; sutură conspicuă ; anfr. ultimo magno, ventricoso : labro subacuto, a varice crasso firmato, intus sulcato : labio rugoso : apertură latē et profundē emarginatā. Div.  $46^{\circ}$  ; long.  $22'''$ .4 ; lat.  $16'''$  ; spiræ long.  $11'''$ .6.

**NASSA GEMMULOSA.** N. t. ovato-conică, ventricosă : albidă, flavulă ; lineă fuscă infrasuturali, alteră anteriore, et ad anfr. ultimum medium paucis interruptis,—ornată : costis minimis 15 vel 16 ; lineis elevatis spiralibus ; intersectionibus eleganter nodulosis : spiră conică : apice peracută : anfr. 7, subconvexis ; sutură conspicuă : labro subacuto, a varice crasso firmato, intus sulcato : apertură profundē emarginatā. Div.  $56^{\circ}$  ; long.  $5'''$ .2 ; lat.  $2'''$ .7 ; spiræ long.  $3'''$ .8.

**NASSA GLAUCA.** N. t. ovato-conică, ventricosă : glaucă, fasciă albidă suprasuturali ornată : costis 10, 2 vel 3 ultimis obsoletis ; spiraliter striatā : spiră subconică : apice acută : anfr. subconvexis ; sutură conspicuă ; anfr. ultimo ventricoso : labro subacuto, a varice crasso firmato, intus carinis 5 instructis : apertură profundē emarginatā. Div.  $55^{\circ}$  ; long.  $12'''$ .7 ; lat.  $7'''$ .9 ; spiræ long.  $5'''$ .3.

**NASSA PANAMENSIS.** N. t. elongatā, ovato-conică : olivaceă, cœruleo tinctă, lineă albidă spiraliter fasciată ; labro supră albido : costis 11, angustis, acutis, antierius obsoletis ; striis exilibus, spiralibus : spiră subconoideă : apice acută : anfr. 8, subconvexis ; sutură conspicuă ; anfr. ultimo parvo : labro subacuto, a varice crasso firmato, intus sulcato : apertură profundē emarginatā. Div.  $37^{\circ}$  ; long.  $14'''$ .7 ; lat.  $6'''$ .3 ; spiræ lon.  $8'''$ .8.

**NASSA PROXIMA.** N. t. *Nassæ versicolori* (v. infră) simili, exiliore, costis minis prominentibus, striis continuis exilissimis creberrimē insculptă. Div.  $38^{\circ}$  ; long.  $11'''$ .2 ; lat.  $5'''$ .3 ; spiræ long.  $7'''$ .1.

**NASSA STRIATA.** N. t. elongatā, ovato-conică : albidă, flavo tinctă ; apertură albă : costis parvis 12 vel 13 ; striis magnis, spiralibus, multis ; spiră subconoideă : apice acută : anfr. 8, convexis ; sutură subprofundă : labro subacuto, a varice lato firmato, intus sulcato : labio birugoso : apertură profundē emarginatā. Div.  $48^{\circ}$  ; long.  $14'''$ .7 ; lat.  $7'''$ .9 ; spiræ long.  $8'''$ .4.

**NASSA VERSICOLOR.** N. t. elongatā, ovato-conică : flavulă, vel albidă, sutură atro-fuscă, vel omnino atro-fuscă : costis angustis prominentibus, 9 vel 10 ; striis exilibus, spiralibus, ad anfr. medios evanescentibus : spiră subconică : apice acută : anfr. 8, subconvexis ; sutură profundă : labro subacuto, a varice robusto incrassato : labio exilē rugoso : apertură pro-

fundè emarginatâ. Div.  $45^{\circ}$ ; long.  $15''$ .2; lat.  $8''$ .4; spiræ long.  $8''$ .8.

**NASSA WILSONI.** N. t. ovato-conicâ, ventricosâ: atro-fuscâ, fasciâ suprasuturali albidâ ornatâ: costis parvis, 16 ad 20; lineis elevatis spiralibus multis: spirâ conoideâ: apice acutâ: anfr. 7, subconvexis; suturâ conspicuâ; anfr. ultimo ventricoso: labro subacuto, extus et intus incrassato, carinis paucis instructo: aperturâ profundè emarginatâ. Div.  $58^{\circ}$ ; long.  $8''$ .1; lat.  $4''$ .8; spiræ long.  $4''$ .6.

**BUCCINUM LUGUBRE.** B. t. elongatâ, ovato-fusiformi; atrofuscâ: costis parvis, 9 usque ad 13 ad singulos anfr. a striis spiralibus inequalibus decussatis, intersectionibus nonnullis acutè nodatis: apice acutâ: spirâ conicâ: anfractibus 8, convexis, suturâ haud valdè impressâ: aperturâ ovatâ: labro acuto: canali brevi recurvâ. Div.  $44^{\circ}$ ; long.  $17''$ ; lat.  $7''$ ; spiræ long.  $10''$ .

**BUCCINUM STIMPSONIANUM.** B. t. elongatâ, ovato-conicâ: atro-cinereâ, labro suprâ albidò, sæpe albo-fasciatâ: rugis transversis crassis, 7 vel 8 ad singulos anfr. et rugis angustis spiralibus, quorum conspicuis ad penultimum anfr. 4, infrâ minoribus; striis spiralibus exilibus plurimis: apice acutâ: spirâ conicâ: anfr. 8: aperturâ ovatâ: labro crasso, intus plicis paucis instructo: columellâ rugosâ: canali brevi, valdè emarginatâ. Div.  $38^{\circ}$ ; long.  $18''$ .3; lat.  $8''$ .1.

**PURPURA FOVEOLATA.** P. t. obliquè rhombicâ: albidâ; rugis transversis, magnis, compressis, 9 ad singulos anfr., et carinis 4, elevatis, angustis; intersectionibus elevatis; striis spiralibus exilibus: apice acutâ: anfr. 6, suprâ et infrâ concavis, mediis carinatis, suturâ inconspicuâ: aperturâ elongatâ: labro tenui, a carinis pectinato, a striis spiralibus serrato. Div.  $70^{\circ}$ ; long.  $10''$ .9; lat.  $7''$ .1.

**PURPURA OSCULANS.** P. t. obliquè rhombicâ: sordidè albâ, intus nivèâ: rugis transversis, convexis, prominentibus, 9 ad singulos anfr., et rugis spiralibus, a striis disjunctis, creberrimè imbricatim squamosis, rugas transversas superantibus, alternis majoribus: apice acutâ: spirâ conicâ; anfr.  $6\frac{1}{2}$ , convexis, suturâ impressâ; aperturâ obovatâ: labro exilè pectinato, intus transversè sulcato: canali brevissimâ, profundè emarginatâ. Div.  $70^{\circ}$ ; long.  $6''$ .86; lat.  $4''$ .3; spiræ long.  $3''$ .

**COLUMELLA CONSPICUA.** C. t. ovato-conicâ: fasciâ albâ latâ ad medios anfr., utrinque fasciâ fusco-aurantiâ latâ ornatâ; infrâ albâ, fusco maculatâ; rugis alternis maculâ fuscâ conspicuis: rugis transversis, 9 ad singulos anfr., maximis, obtusis, ad summos anfr. obsoletis: striis magnis spiralibus rugas propè superantibus: apice subacutâ: spirâ subconicâ: anfr. 8, convexis, suturâ haud multùm impressâ; anfr. ultimo subangulato: aperturâ suprâ haud multùm latiore, latè et profundè emarginatâ: labro subincrassato, intus rugoso. Div.  $35^{\circ}$ ; long.  $5''$ .3; lat.  $2''$ .5; spiræ long.  $3''$ .

**COLUMELLA DIMINUTA.** C. t. subfusiformi: pallidè flavo-fuscâ, infrâ nigrescente: costatâ, spiraliter striatâ: striis costas haud superantibus, infrâ majoribus; costis infrâ obsoletis: apice acutâ: spirâ conicâ: anfr. 7, suturâ parum impressâ: aperturâ subangustâ: labro valdè incrassato,



intus crenulato: labio subgranuloso. Div.  $45^{\circ}$ ; long.  $3'''$ .9; lat.  $1'''$ .8; spiræ long.  $2'''$ .

**COLUMBELLA GRACILIS.** C. t. elongatâ, ovato-conicâ: suprâ pallidè fuscâ, infrâ rubro-fusco irregulariter maculatâ, a lineâ albo et fusco articulatâ fasciatâ: costis parvis, plurimis; infrâ spiraliter striatâ: apice acutâ; spirâ conicâ: anfr. 8, suturâ conspicuâ: labro crasso, intus sparse granulato, suprâ subsinuato: columellâ sublævi. Div.  $37^{\circ}$ ; long.  $7'''$ .6; lat.  $3'''$ .2; spiræ long.  $5'''$ .1.

**COLUMBELLA MÆSTA.** C. t. gracili, subfusiformi: atrâ vel atrofusâ: suprâ sublævi; mediâ costatâ, costis 12 usque ad 15 ad singulos anfr., costarum intervallis spiraliter striatis; costis et striis ad ultimum anfr. obsoletis: apice acutâ: spirâ gracillimâ: anfr. 8, suturâ parum impressâ: aperturâ lineari: labro valdè incrassato, suprâ sinuato, intus crenulato: columellâ sublævi. Div.  $35^{\circ}$ ; long.  $7'''$ .6; lat.  $2'''$ .8; spiræ long.  $4'''$ .3.

**COLUMBELLA PULCHRIOR.** C. t. subelongatâ, ovatâ: diaphanâ, pallidè flavo-fuscâ, fasciâ albâ atro-cinereo articulatâ infrasuturali, et punctis minimis rubrofusciis quincuncialiter dispositis ornatâ: lævi, nitidâ: apice acutâ: spirâ conicâ; anfr. 6 vel 7, suturâ parum impressâ: aperturâ angustâ: labro crasso, intus sparse granulato: columellâ sublævi. Div.  $45^{\circ}$ ; long.  $3'''$ .8; lat.  $1'''$ .8; spiræ long.  $1'''$ .9.

**COLUMBELLA TESSELEATA.** C. t. subelongatâ, ovatâ; atro-glaucâ, fusco tinctâ; albo tesselatâ: costis approximatis, validis, circa 15 ad singulos anfr.; striis spiralibus profundis: apice acutâ: spirâ conicâ: anfr. 8, suturâ conspicuâ: aperturâ elongatâ: labro crasso, suprâ subsinuato, intus sparse granulato: labio subgranuloso. Div.  $48^{\circ}$ ; long.  $5'''$ .7; lat.  $2'''$ .7; spiræ long.  $3'''$ .3.

**RICINULA JUGOSA.** R. t. rhombicâ: perfuscâ, tuberculis albidis, vel rufis, infrâ albo-fasciatâ: rugis transversis, elevatis, 8 vel 9, a rugis spiralibus 10 vel 11, quorum 3 vel 4 ad spiram videntur,—decussatis; intersectionibus tuberculatis; striis exilibus spiralibus: apice acutâ: spirâ conicâ: anfr. 8 vel 9, convexis, suturâ parum impressâ: aperturâ elongatâ: labro a rugis spiralibus pectinato, intus plicato: labio suprâ concavâ, infrâ sparse rugosâ et granulatâ: canali subelongatâ. Div.  $55^{\circ}$ ; long.  $23'''$ .9; lat.  $11'''$ .9.

**TRITON FUSOIDES.** T. t. gracili, ovato-fusiformi: albidâ, fusco tinctâ, albo fasciatâ: costis distantibus, angustis, elevatis, 9 ad singulos anfr., a lineis elevatis spiralibus exilibus, alternis majoribus,—decussatis: apice acutâ: spirâ conicâ: anfr. 8, convexis, suturâ impressâ: aperturâ elongatâ: canali brevi. Div.  $35^{\circ}$ ; long.  $19'''$ .3; lat.  $7'''$ .1.

**FUSUS BELLUS.** F. t. sub-elongatâ, fusiformi: albâ, maculis rubro-fuscis, plerumque in seriebus tribus spiralibus—dispositis: costis subangustis elevatis, circa 10 ad singulos anfr., quarum nonnullæ varices simulantur, et lineis elevatis spiralibus, intersectionibus nodulosis, et striis spiralibus: apice acutâ: spirâ conicâ; anfr. 7, perconvexis, suturâ parum impressâ: aperturâ elongatâ: canali latâ, subelongatâ. Div.  $50^{\circ}$ ; long.  $11'''$ .2; lat.  $5'''$ .2; spiræ long.  $5'''$ .6.

**CANCELLARIA AFFINIS.** C. t. ovato-fusiformi: fuscâ, interdum albo unifasciatâ vel bifasciatâ; rugis transversis angustis, elevatis, inequidistantibus, circa 30 ad singulos anfr.; lineis elevatis spiralibus plurimis, quarum 5 ad spiram videntur: apice subacutâ: spirâ conicâ: anfr. 6, suturâ subcaniculatâ: aperturâ semiobovâtâ, intus ad dextram partem carinis acutis instructâ: labro acuto, pectinato: columellâ validâ, triplicatâ, plicâ superiore magnâ lamelliforme, inferiore parvâ et perobliquâ: canali brevî. Div.  $68^{\circ}$ ; long.  $26''$ .7; lat.  $16''$ .5; spiræ long.  $11''$ .4.

**CANCELLARIA PYGMAEA.** C. t. subovatâ, brevî: pallidè cerinâ, suprâ atrofusco irregulariter radiatâ, punctis atrofusis ad costas dispositis: costis elevatis, angustis, ad anfr. ultimum 9, suprâ crebris, plurimis, ad angulum anfr. majoribus; lineis elevatis, spiralibus, ad intersectiones majoribus: striis spiralibus exilissimis: apice subacutâ: spirâ conicâ; anfr. 5, acutè angulatis, suprâ latè concavis, suturâ conspicuâ: aperturâ triangulari, infrâ effusâ: columellâ buplicatâ: umbilico angusto, profundo. Div.  $100^{\circ}$ ; long.  $8''$ .4; lat.  $6''$ .3; spiræ long.  $3''$ .8.

**PLEUROTOMA ATRIOR.** P. t. subfusiformi: aterrimâ, fasciâ pallidâ: supra suturam granulis in serie spirali dispositis; supra medios anfr. carinatâ; anfr. ultimo carinis tribus alteris spiralibus instructo: apice peracutâ: spirâ conoideâ: anfr. 11, angulatis, infra concavâ, suturâ inconspicuâ: aperturâ elongatâ: sinu subprofundo: canali brevî, latâ. Div.  $38^{\circ}$ ; long.  $20''$ .3; lat.  $7''$ .1; spiræ long.  $12''$ .7.

**PLEUROTOMA CONCINNA.** P. t. fusiformi: albidâ, rubro-fusco tinctâ: costis parvis, crebris, plurimis, prope labrum obsoletis, et striis spiralibus crebris, suprâ exilioribus: apice acutâ: spirâ conoideâ: anfr. 8, mediis angulatis, suturâ parum impressâ: aperturâ lineari: labro valdè incrassato: sinu profundo, suture approximato: canali brevissimâ. Div.  $43^{\circ}$ ; long.  $10''$ .7; lat.  $4''$ .3; spiræ long.  $4''$ .6.

**PLEUROTOMA EXIGUA.** P. t. gracili: pallidè flavâ, lineis fuscis spiralibus, exilibus, plerumque geminatis: rugis transversis obtusis distantibus, 6 vel 7 ad singulos anfr., infrâ obsoletis: apice acutâ: spirâ conoideâ: anfr. 6, convexis, suturâ impressâ: aperturâ angustâ: labro acuto, a rugâ ultimâ firmitatè: sinu profundo, suturâ approximato: canali brevissimâ. Div.  $34^{\circ}$ ; long.  $4''$ .5; lat.  $1''$ .5; spiræ long.  $2''$ .5.

**PLEUROTOMA GEMMULOSA.** P. t. elongatâ, subfusiformi: fuscâ, pallidè maculatâ: plicis transversis et spiralibus, creberrimis, parvis, intersectionibus valdè nodulosis: apice acutâ: spirâ conoideâ: anfr. 8, subconvexis, suturâ haud multum impressâ: aperturâ angustâ: sinu parvo: labro incrassato: canali brevissimâ. Div.  $33^{\circ}$ ; long.  $5''$ .6; lat.  $2''$ ; spiræ long.  $3''$ .56.

**PLEUROTOMA GRANDIMACULATA.** P. t. elongatâ, ovato-pyramidatâ: nigrâ, maculis (ad tuberculas) albidis magnis in serie spirali dispositis: striis spiralibus, exilissimis, infrâ obsoletis; carinâ spirali acutâ infrasuturali; infrâ alterâ, tuberculatâ; anfr. ultimo carinis 4 vel 5 alteris instructo: apice acutâ: spirâ conicâ: anfr. 10, suturâ inconspicuâ: aperturâ subangustâ: labro subincrassato: sinu subprofundo: labio incrass-

sato: canali brevissimâ. Div.  $38^{\circ}$ ; long.  $24'''$ .1; lat.  $8'''$ .9; spiræ long.  $15'''$ .7.

*PLEUROTOMA STRIOSA*. P. t. gracili: subalbidâ, ad anfr. ultimum fusco exilè fasciatâ; striis spiralibus creberrimis; costis exilibus, 10 usque ad 12 ad singulos anfr.: apice acutâ; spirâ subconicâ: anfr. 8, convexa, suturâ parum impressâ: aperturâ subangustâ: labro subacuto, a costâ ultimâ firmato: canali brevissimâ. Div.  $33^{\circ}$ ; long.  $7'''$ .6; lat.  $2'''$ .5; spiræ long.  $5'''$ .1.

*MANGELIA NEGLECTA*. M. t. subfusiformi: pallidè fusco-rubrà: costis curvatis, elevatis, 8 vel 9 ad singulos anfr., et lineâ elevatâ spirali ad medios anfr., ad anfr. ultimum obsoletâ; infrâ spiraliter striatâ: apice acutâ: spirâ conoideâ: anfr. 7, subconvexis, suturâ conspicuâ: aperturâ subangustâ: labro valdè incrassato: sinu angusto: canali brevissimâ. Div.  $40^{\circ}$ ; long.  $5'''$ .1; lat.  $1'''$ .8; spiræ long.  $2'''$ .8.

*CERITHIUM ASSIMILATUM*. C. t. prælongâ, conicâ: atro-rubrà, ad carinas albo lineatim maculatâ: carinis spiralibus, tribus, perelevatis, compressis, acutis, et carinâ alterâ sinili ad anfr. ultimi peripheriam, et infrâ carinâ quintâ minori; lineis elevatis transversis, inter carinas, exilissimis: apice acutâ: spirâ conicâ: anfr. 16 usque ad 18, planulatis, suturâ inconspicuâ; anfr. ultimo brevissimo: aperturâ ovatâ: labro pectinato: canali latâ, brevissimâ. Div.  $18^{\circ}$ ; long.  $5'''$ .8; lat.  $1'''$ .5; spiræ long.  $4'''$ .8.

*CERITHIUM BIMARGINATUM*. C. t. elongatâ, conicâ: cerinâ, suprâ fuscâ: carinis spiralibus duobus, suturæ approximatis et lineâ elevatâ ad medios anfr.; rugis parvis transversis, 18 ad singulos anfr.; intersectionibus valdè nodulatis; anfr. ultimi peripheriâ carinatâ; infrâ lævi: apice acutâ: spirâ conicâ: anfr. 13, concavis, suturâ impressâ; anfr. ultimo angulato, infrâ concavo: aperturâ subquadratâ: columellâ spiraliter uniplicatâ: canali brevi, recurvâ. Div.  $20^{\circ}$ ; long.  $4'''$ .4; lat.  $1'''$ .4; spiræ long.  $3'''$ .5.

*CERITHIUM FAMELICUM*. C. t. elongatâ, ovato-conicâ: sordidè albidâ, fusco irregulariter maculatâ, maculis albo spiraliter exilè lineato; vel lineis fuscis et albis alternis crebris spiralibus ornatâ: carinâ angustâ spirali ad medios anfr., et rugis transversis, intersectionibus elevatis acutis; infrâ rugis duobus spiralibus granulosis instructâ; exilè creberrimè striatâ: apice acutâ: spirâ subconoideâ: anfr. 12, subconvexis, suturâ parum impressâ; anfr. ultimo brevi, gibboso, infrâ concavo: aperturâ magno: labio suprâ transversim uniplicato: canali brevi, obliquâ. Div.  $33^{\circ}$ ; long.  $28'''$ .7; lat.  $12'''$ .7; spiræ long.  $19'''$ .1.

*CERITHIUM NEGLECTUM*. C. t. elongatâ; ovato-conicâ: atro-rubrà, ad apicem albâ: carinis spiralibus elevatis tribus, et rugis transversis elevatis, ad anfr. ultimum 16 usque ad 18, et minoribus, infrâ obsoletis; intersectionibus valdè nodulatis: infrâ spiraliter birugatâ: apice acutâ: spirâ conoideâ: anfr. 10, subconvexis, suturâ inconspicuâ: canali brevissimâ, profundè emarginatâ. Div.  $20^{\circ}$ ; long.  $3'''$ .2; lat.  $1'''$ ; spiræ long.  $2'''$ .3.

*CERITHIUM PAUPERECULUM*. C. t. gracili: pallidè corneâ: spiraliter

multicarinata; suprà rugis transversis, infrà evanescentibus; intersectionibus subgranulatis: apice acutà: spirà subconoideà: anfr. 8, subconvexis, suturà parum compressà; anfr. ultimo subelongato: aperturà elongatà, suprà acuminatà: canali brevissimà. Div.  $18^{\circ}$ ; long.  $3'''.3$ ; lat.  $1'''$ ; spiræ long.  $2'''.3$ .

CERITHIUM PULCHRUM. C. t. subelongatà, subconicà: aterrimè fusco-rubro, lineà spirali flavo-albà ad medios anfr. ornatà: costis angustis acutis, ad singulos anfr. 40, ad anfr. ultimum medium truncatis; varicibus robustis,  $240^{\circ}$  distantibus; carinà spirali, supra medios anfr., angustà, acutà: spiraliter striatà: apice acutà: spirà subconoideà: anfr. 11, suturà profundà: aperturà magnà, suprà effusà, infrà angustè sinuatà: labro crasso. Div.  $33^{\circ}$ ; long.  $31'''.8$ ; lat.  $16'''.5$ ; spiræ long.  $20'''.8$ .

CERITHIUM REEVIANUM. C. t. subconicà: rubro-fusca, lineà spirali flavo-albà ad medios anfr. et alterà anteriori ornatà; costis summis pallidè flavis: varicibus nullis; costis elevatis, 24 ad singulos anfr., infrà evanescentibus; infrà spiraliter striatà: apice acutà: spirà subconoideà: anfr. 15, convexis, suturà impressà: aperturà magnà, suprà effusà, infrà angustè sinuatà: labro crasso. Div.  $28^{\circ}$ ; long.  $39'''.4$ ; lat.  $16'''.7$ ; spiræ long.  $26'''.4$ .

CERITHIUM VALIDUM. C. t. conicà: rubro-fusca, lineà pallidà ad medios anfr. ornatà; varicibus rufis, interdum albidis; aperturà albà; rugis transversis, arcuatis elevatis, 20 ad singulos anfr., ad anfr. ultimi peripheriam truncatis; varicibus  $270^{\circ}$  distantibus; carinis spiralibus 5 vel 6; spiraliter striatà: apice acutà: spirà subconoideà: anfr. 12, convexis, suturà impressà; anfr. ultimo brevissimo: aperturà infrà effusà: labro incrassato. Div.  $32^{\circ}$ ; long.  $40'''.6$ ; lat.  $19'''.1$ ; spiræ long.  $29'''.2$ .

TRIPHORIS ALTERNATUS. T. t. sinistrorsà, conicà: atro-rubrà, infrà albidò fasciatà: carinis spiralibus duobus suturæ approximatis, et tertià intermedià minore; rugis transversis, 25 ad singulos anfr., ad anfr. ultimi peripheriam truncatis; intersectionibus valdè nodulatis: apice acutissimà; spirà subconoideà: anfr. 12, subplanulatis: suturà inconspicuà; anfractu ultimo brevi, infrà concavà: aperturà rhombicà: canali brevi, profundà. Div.  $30^{\circ}$ ; long.  $5'''.1$ ; lat.  $1'''.5$ ; spiræ long.  $3'''.9$ .

TRIPHORIS INCONSPICUUS. T. t. sinistrorsà, ovato-fusiformi: atro-rubrà, cinerascete: carinis spiralibus tribus, nodulosis, et infrà alteris 3 vel 4 subnodulosis; rugis transversis, 20 ad singulos anfr.: apice acutissimà: spirà conoideà: anfr. 12, subconvexis, suturà inconspicuà: aperturà suprà sinuatà: canali brevi, profundà. Div.  $22^{\circ}$ ; long.  $4'''.2$ ; lat.  $1'''.4$ ; spiræ long.  $3'''.3$ .

TRIPHORIS INFREQUENS. T. t. conicà: atro-rubrà: carinis spiralibus tribus perelevatis compressis; rugis transversis, 16 ad singulos anfr.; infrà lævi: apice acutà: spirà subconicà: anfr. 16, subplanulatis, suturà inconspicuà; anfr. ultimo brevissimo: labro pectinato: canali brevissimà. Div.  $20^{\circ}$ ; long.  $3'''.3$ ; lat.  $1'''.1$ ; spiræ long.  $2'''.7$ .

CÆCUM DIMINUTUM. C. t. arcuatà, gracili, haud tereti: albidà: annulis 17, robustis, subdistantibus, ad summam partem planulatis, et

annulis 10, minoribus, minùs elevatis : apice laterali, haud prominente. Long. 1''''.5 ; lat. 0''''.46.

**CÆCUM EBURNEUM.** C. t. arcuatâ, subgracili, vix tereti : eburneâ : annulis 33, latis, approximatis, ad summam partem planulatis ; superioribus 4 usque ad 10, interdum inferioribus 2 vel 3 magis elevatis et minùs approximatis : apice prominente. Long. 2''''.3 ; lat. 0''''.63.

**CÆCUM FIRMATUM.** C. t. robustâ, arcuatâ, tereti : eburneâ : annulis 25, robustis, latis, subdistantibus, ad summam partem planulatis : apice haud multum prominente. Long. 2''''.3 ; lat. 0''''.76.

**CÆCUM LÆVE.** C. t. arcuatâ, validâ, vix tereti : albidâ : lævi, nitente : apice prominente. Long. 2''''. ; lat. 0''''.68. Var. (?) *minus* ; t. gracili, apice minùs prominente. Long. 1''''.57 ; lat. 0''''.51.

**CÆCUM LAQUEATUM.** C. t. subarcuatâ, gracili, tereti : albidâ : longitudinaliter sulcatâ ; sulcis haud profundis, 20 : apice laterali, parum prominente. Long. 2''''.8 ; lat. 0''''.71.

**CÆCUM MONSTROSUM.** C. t. arcuatâ, suprâ gracili, infrâ robustâ : eburneâ : ad superam partem annulis 18, validis, approximatis, ad summam partem planulatis—instructâ ; ad inferam partem annulis 12, robustis, elevatis, parum approximatis : apice prominente. Long. 2''''.3 ; lat. suprâ 0''''.46 ; lat. infrâ 0''''.76.

**CÆCUM PARVUM.** C. t. arcuatâ, gracili, vix tereti : albidâ : annulis 15, acutis, distantibus, haud multum elevatis : apice laterali, prominente. Long. 1''''.65 ; lat. 0''''.48.

**CÆCUM PYGMÆUM.** C. t. arcuatâ, gracili, vix tereti : albidâ : annulis 23, angustis, prominentibus, ad summam partem planulatis : apice laterali, prominente. Long. 1''''.5 ; lat. 0''''.46.

**CHEMNITZIA ACULEUS.** C. t. gracillimâ, conicâ : albâ : costis obtusis, 17 ad singulos anfr., ad anfr. ultimi peripheriam truncatis : spirâ conicâ : anfr. 12, subconvexis, suturâ impressâ : aperturâ subovatâ : labro tenui : columellâ vix arcuatâ : umbilico nullo. Div. 13° ; long. 4''''.5 ; lat. 1''''. ; spiræ long. 3''''.6.

**CHEMNITZIA ACUMINATA.** C. t. subconicâ : sordidè albidâ : costis obliquis, 16 ad singulos anfr., ad anfr. ultimi peripheriam truncatis : spirâ subconicâ : anfr. 8, suprâ acutè angulatis, parum convexis, suturâ profundâ ; anfr. ultimo elongato : aperturâ subovatâ, suprâ et infrâ acutâ : labro tenui : umbilico nullo. Div. 23° ; long. 2''''.8 ; lat. 1''''.1 ; spiræ long. 1''''.8.

**CHEMNITZIA AFFINIS.** C. t. conicâ : flavâ : costis gracilibus, 24 ad singulos anfr., ad anfr. ultimi peripheriam truncatis : infrâ lævissimâ : spirâ subconicâ : anfr. 10, subconvexis, suturâ impressâ : aperturâ subovatâ : labro tenui : umbilico nullo. Div. 18° ; long. 5''''.3 ; lat. 1''''.4 ; spiræ long. 4''''.1.

**CHEMNITZIA CLATHRATULA.** C. t. ovato-conicâ, prælongâ : albidâ : costis minimis, 36 ad singulos anfr., ad anfr. ultimi peripheriam obsolete, a lineis elevatis spiralibus, 5 vel 6 suprasuturalibus,—decussatis : apice minutissimâ : spirâ subconicâ : anfr. 8, ad summam partem plus minusve

angulatis, suturâ impressâ; anfr. ultimo regulariter rotundato: aperturâ subovatâ: labro tenui: umbilico nullo. Div.  $16^{\circ}$ ; long.  $3'''$ .3; lat.  $1'''$ ; spiræ long.  $2'''$ .5.

CHEMNITZIA COMMUNIS. C. t. subconică: sordidè albâ: rugis transversis, 22 ad anfr. penultimum, ad anfr. ultimum pluribus, infrâ obsoletis; rugis spiralibus, 4 vel 5 suprasuturalibus, suprâ minoribus: apice obliquâ: spirâ conicoideâ: anfr. 8, subconvexis, suturâ impressâ; anfr. ultimo elongato: aperturâ ovatâ, suprâ acutâ, infrâ latè effusâ: labro subtenui: columellâ uniplicatâ; regione umbilicari haud multum indentatâ. Div.  $23^{\circ}$ ; long.  $4'''$ .1; lat.  $1'''$ .27; spiræ long.  $2'''$ .8.

CHEMNITZIA GRACILIOR. C. t. prælongâ, conică: pallidè flavâ: costis gracilibus, 28 ad singulos anfr., infrâ truncatis; striis spiralibus paucis inconspicuis; infrâ costas lineâ impressâ spirali—instructâ: spirâ subconică: anfr. 12, parum convexis, suturâ impressâ: aperturâ ovatâ, suprâ acutâ: labro prætenui: umbilico nullo. Div.  $13^{\circ}$ ; long.  $7'''$ .8; lat.  $1'''$ .5; spiræ long.  $5'''$ .1.

CHEMNITZIA MAJOR. C. t. conică: sordidè albâ: costis approximatis robustis obtusis, 24 ad singulos anfr., infrâ obsoletis; striis spiralibus, exilissimis, creberrimis, haud costas superantibus: spirâ conică: anfr. 15, subconvexis, suturâ impressâ: aperturâ subovatâ: labro tenui: umbilico nullo. Div.  $17^{\circ}$ ; long.  $9'''$ .7; lat.  $2'''$ .3; spiræ long.  $7'''$ .8.

CHEMNITZIA MARGINATA. C. t. subcylindricâ: sordidè albâ: costis compressis, validis, prominentibus, 11 vel 12 ad singulos anfr.; striis spiralibus, exilibus, quarum 5 vel 6 ad anfr. penultimum videntur: apice obliquâ: anfr. 7, marginatis, subconvexis, suturâ impressâ; anfr. ultimo regulariter rotundato: aperturâ parvâ, ovatâ: labro tenui: umbilico nullo. Div.  $28^{\circ}$ ; long.  $2'''$ .9; lat.  $1'''$ .5; spiræ long.  $2'''$ .

CHEMNITZIA PANAMENSIS. C. t. conică: albidâ: costis obliquis, 27 ad singulos anfr., ad anfr. ultimi peripheriam obsoletis, infrâ lævissimâ: spirâ subconică: anfr. 12, subconvexis, suturâ impressâ; anfr. ultimo subangulato: aperturâ ovatâ: labro tenui: umbilico nullo. Div.  $17^{\circ}$ ; long.  $5'''$ .6; lat.  $1'''$ .4; spiræ long.  $4'''$ .3.

CHEMNITZIA SIMILIS. C. t. conică: albidâ: costis subobtusis, 26 ad singulos anfr., ad anfr. ultimi peripheriam truncatis: spirâ subconică: anfr. 11, convexis, suturâ valdè impressâ; anfr. ultimo regulariter rotundato: aperturâ subovatâ: labro tenui: umbilico nullo. Div.  $17^{\circ}$ ; long.  $4'''$ .3; lat.  $1'''$ .1; spiræ long.  $3'''$ .3.

CHEMNITZIA STRIOSA. C. t. conică: flavâ: costis exilibus, 40 ad singulos anfr., ad anfr. ultimi peripheriam obsoletis; striis spiralibus creberrimis: spirâ subconică: anfr. 10, parum convexis, suturâ impressâ; aperturâ ovatâ: labro tenui: umbilico nullo. Div.  $20^{\circ}$ ; long.  $5'''$ .3; lat.  $1'''$ .5; spiræ long.  $4'''$ .1.

CHEMNITZIA TURRITA. C. t. suprâ conică, infrâ cylindraceâ: albidâ: costis gracilibus, compressis, acutis, 18 ad singulos anfr., ad anfr. ultimi peripheriam truncatis; infrâ spiraliter unisulcatâ: spirâ subconoideâ: anfr. 10, suprâ acutè angulatis, parum convexis, suturâ impressâ; anfr.

ultimo angulato : aperturâ subovatâ : labro tenui : umbilico nullo. Div.  $23^{\circ}$  ; long.  $4'''$ .7 ; lat.  $1'''$ .4 ; spiræ long.  $3'''$ .56.

LITTORINA (?) ANGIOSTOMA. L. t. subellipticâ : sordidè albâ : striis spiralibus, equidistantibus, profundis : apice obtusâ : spirâ parvâ, conoideâ : anfr.  $3\frac{1}{4}$ , perconvexis, suturâ conspicuâ : aperturâ subeffusâ, semiellipticâ : labio recto : umbilico conspicuo. Div.  $85^{\circ}$  : long.  $3'''$ .3 ; lat.  $2'''$ .5 ; spiræ long.  $1'''$ .4.

LITTORINA ATRATA. L. t. subglobosâ : atro, interdum albido maculatâ : carinis spiralibus, inequalibus ; plerumque ad anfr. ultimi peripheriam et ad summam partem anfr. omnium præcipuè carinatâ : apice acutâ : spirâ parvâ, subconoideâ : anfr. 4, subconvexis, suturâ impressâ : aperturâ latâ, ovatâ : umbilico minimo. Div.  $65^{\circ}$  usque ad  $90^{\circ}$  ; long.  $2'''$  ; lat.  $1'''$ .5.

LITTORINA DUBIOSA. Nov. sp. ! L. t. conoideâ : cœruleâ, fasciâ subalbidâ fusco-articulatâ—ornatâ ; intûs atro-fuscâ ; labro fusco et albo maculato : striis nonnullis spiralibus : apice subacutâ : spirâ subconoideâ : anfr. 6, parùm convexas, suturâ conspicuâ ; anfr. ultimo angulato : aperturâ ovatâ, subeffusâ : columellâ haud multùm dilatâtâ. Div.  $55^{\circ}$  ; long.  $6'''$ .3 ; lat.  $4'''$ .3. An *L. parvula* Phil. ?

LITTORINA (?) EXCAVATA. L. t. subellipticâ : ad apicem, ad umbilicum, et intûs, atro-fuscâ ; ad partes ceteras pallidè corneâ : lineis elevatis et striis exilissimis—spiralibus : apice subacutâ : spirâ parvâ, conoideâ : anfr. 4, angustis, suturâ conspicuâ ; anfr. ultimo ventricosus : aperturâ subovatâ : labro acuto : columellâ dilatâtâ, incrassatâ : regione umbilicari profundè excavatâ : umbilico parvo. Div.  $90^{\circ}$  ; long.  $4'''$ .3 ; lat.  $3'''$ .3 ; spiræ long.  $1'''$ .

LITTORINA (?) FOVEATA. L. t. globoso-conicâ : sordidè albâ, fasciâ fuscâ, spirali, latâ,—ornatâ : lineis elevatis, spiralibus, nonnullis, inequidistantibus : apice subacutâ : spirâ subconoideâ : anfr. 4, subangulatis, suturâ conspicuâ : aperturâ subovatâ : labro acutissimo : columellâ dilatâtâ incrassatâ : regione umbilicari profundè excavatâ : umbilico profundo. Div.  $80^{\circ}$  ; long.  $4'''$ .8 ; lat.  $3'''$ .8 ; spiræ long.  $2'''$ .

LITTORINA (?) MEGASOMA. L. t. ovoideâ : sordidè albâ : carinis spiralibus, parvis, 8 vel 9, 3 suprasuturalibus ; striis transversis, magnis profundis, equidistantibus : apice acutâ : spirâ minimâ, subconicâ : anfr. 3, angulatis, suturâ canaliculatâ ; anfr. ultimo magno, obliquè elongato : aperturâ subellipticâ : labro tenui : carinâ spirali umbilicum continente : umbilico magno, profundo. Div.  $135^{\circ}$  ; long.  $2'''$ .3 ; lat.  $2'''$ .3 ; spiræ long.  $0'''$ .88.

RISSEA CLANDESTINA. R. t. elongatâ, ovato-conicâ : sordidè albâ ; costis robustis, compressis, prominentibus, 18 vel 19 ad singulos anfr., ad inferam extremitatem productis : apice acutâ : spirâ subconoideâ : anfr. 7, subconvexas, suturâ impressâ : aperturâ magnâ, utrinque subeffusâ : labro ad mediam partem longè producto, a varice lato valdè incrassato : umbilico nullo. Div.  $30^{\circ}$  ; long.  $2'''$ .9 ; lat.  $1'''$ .27 ; spiræ long.  $1'''$ .78.

RISSEA FIRMATA. R. t. elongatâ, ovato-conicâ : sordidè albâ : costis

robustis, prominentibus, 12 ad singulos anfr., ad inferam extremitatem productis: apice acutâ: spirâ conoideâ: anfr. 7, convexis, suturâ impressâ: aperturâ subovatâ, utrinque effusâ: labro ad mediam partem producto, a varice crasso—firmato: umbilico nullo. Div. 30°; long. 4'''7; lat. 1'''9; spiræ long. 3'''3.

*RISSOA FORTIS.* R. t. elongatâ, ovato-conicâ: albidâ: costis robustis, approximatis, 22 ad singulos anfr., ad inferam extremitatem minoribus productis: apice acutâ: spirâ conoideâ: anfr. 10, subconvexis; anfr. ultimo ventricosus: aperturâ ovatâ, profundè effusâ: labro infrâ producto, crassissimo: umbilico nullo. Div. 33°; long. 7'''4; lat. 3'''; spiræ long. 4'''6.

*RISSOA (?) INCONSPICUA.* R. t. ovato-conicâ: albidâ: carinis spirali-bus nonnullis, infrâ obsoletis: apice subacutâ: spirâ conoideâ: anfr. 4, perconvexis, suturâ profundâ; anfr. ultimo brevi: aperturâ orbiculari, vix effusâ: labro incrassato: umbilico minutissimo. Div. 55°; long. 1'''14; lat. 0'''76; spiræ long. 0'''81. An Cingulæ species?

*RISSOA INFREQUENS.* R. t. prælongâ, ovato-conicâ: albidâ: costis perobtusis, haud multum elevatis, confertim approximatis, 16 ad singulos anfractus; striis spiralibus, nonnullis, exilissimis: apice subacutâ: spirâ subconicâ: anfr. 7, suturâ haud multum impressâ; anfr. ultimo elongato, subangulato: aperturâ subovatâ, vix effusâ: labro incrassato: umbilico nullo. Div. 23°; long. 6'''1; lat. 1'''9; spiræ long. 4'''6.

*RISSOA JANUS.* R. t. elongatâ, ovato-conicâ: albidâ: infrâ spiraliter exilè striatâ; aliunde costis exilibus creberrimis ornatâ: apice acutâ: spirâ subconicoideâ: anfr. 9, subconvexis, suturâ parum impressâ: aperturâ magnâ, infrâ effusâ, suprâ profundè effusâ: labro ad mediam partem producto, a varice robusto firmato: umbilico nullo. Div. 30°; long. 4'''8; lat. 1'''8; spiræ long. 2'''9.

*RISSOA NOTABILIS.* R. t. elongatâ, ovato-conicâ: albidâ: costis per-elevatis, ad summam partem concavis, 14 ad singulos anfr., infrâ obsoletis; carinis spiralibus, duobus ad spiram, duobus alteris inferis: apice subobtusâ, nitidâ: spirâ conicâ: anfr. 6, ad summam partem acutè angulatis, aliunde planulatis, suturâ profundâ: aperturâ ovatâ: umbilico nullo. Div. 24°; long. 1'''5; lat. 0'''68.

*RISSOA SCALARIFORMIS.* R. t. elongatâ, ovato-conicâ: albidâ: costis validis, compressis, prominentibus, acutis, continuis, 11 ad singulos anfr.; striis spiralibus, exilissimis, costas ascendentibus, haud superanti-bus: apice acutâ: spirâ subconoideâ: anfr. 8, convexis, suturâ impressâ: aperturâ perobliquâ, ovatâ, utrinque effusâ: labro subincrassato, ad mediam partem producto. Div. 33°; long. 3'''3; lat. 1'''27; spiræ long. 2'''03.

*CINGULA (?) INCONSPICUA.* C. t. ovato-fusiformi; albidâ: carinis spiralibus, nonnullis, 4 ad anfr. penultimum; duobus superioribus, minoribus, et a rugis transversis decussatis: apice subacutâ: spirâ subconoideâ: anfr. 5, haud multum convexis, suturâ impressâ; anfr. ultimo parvo: aperturâ parvâ, ovatâ, suprâ acutâ: labro subtenui: regione



umbilicari haud multum indentatâ. Div.  $30^{\circ}$ ; long.  $1'''$ .65; lat.  $0'''$ .89; spiræ long.  $1'''$ .14.

CINGULA PAUPERCULA. R. t. conoideâ: sordidè albâ, interdum flavo-fasciatâ: lævi: apice subacutâ: spirâ subconicâ: anfr. 5, planulatis, suturâ impressâ: aperturâ latâ, ovatâ: labro haud multum incrassato: umbilico minutissimo. Div.  $33^{\circ}$ ; long.  $2'''$ .16; lat.  $1'''$ .27; spiræ long.  $1'''$ .47.

CINGULA (?) TEREBELLUM. C. t. subcylindricâ; albidâ: carinis 4, spiralibus, perelevatis, acutis, compressis, quarum 2 ad spiram videntur: apice subacutâ; spirâ subconoideâ: anfr. 6, parum convexis, suturâ inconspicuâ; anfr. ultimo parvo: aperturâ parvâ, ovatâ, suprâ acutâ: labro tenui: umbilico nullo. Div.  $28^{\circ}$ ; long.  $2'''$ ; lat.  $1'''$ ; spiræ long.  $1'''$ .4.

CINGULA TURRITA. C. t. elongatâ, conicâ: albidâ: costis prominentibus, compressis, crebris, prope suturam a striâ spirali suprasuturali truncatis; infrâ spiraliter striatâ: apice acutâ: spirâ subconicâ: anfr. 6, ad summam partem acutè angulatis, aliunde planulatis, suturâ canaliculatâ: aperturâ parvâ, ovatâ, vix effusâ: labro tenui: regione umbilicari minutissimè indentatâ. Div.  $30^{\circ}$ ; long.  $2'''$ ; lat.  $0'''$ .74; spiræ long.  $0'''$ .61.

LITIOPA (?) SAXICOLA. L. t. elongatâ, ovatâ: corneâ, subtransparente: striis spiralibus profundis equidistantibus crebris ornâtâ: apice acutâ: spirâ subconoideâ: anfr. 5, convexis, suturâ impressâ: anfr. ultimo ventricosâ: aperturâ latâ, ovatâ, suprâ acutâ: labro prætenui; umbilico nullo. Div.  $45^{\circ}$ ; long.  $3'''$ .56; lat.  $1'''$ .9; spiræ long.  $1'''$ .8.

ADEORBIS (?) ABJECTA. A. t. subglobosâ: pallidè flavâ, vel sordidè atrâ, vel partim utriusque coloris: lineis elevatis spiralibus, et striis spiralibus ad summam partem anfr. ornâtâ: apice subacutâ: spirâ brevi: anfr. 3, plusve, convexis, suturâ conspicuâ; anfr. ultimo ventricosâ: aperturâ effusâ, semicirculari: labio recto: umbilico minimo. Div.  $110^{\circ}$ ; long.  $2'''$ .54; lat.  $2'''$ .29; spiræ long.  $1'''$ .14.

VITRINELLA CONCINNA. V. t. discoideâ: albâ: carinis spiralibus, 5, acutis, prominentibus, quarum superior infrasuturalis est, quarum inferior umbilicaris est: transversè striatâ: apice minimâ, papillari: spirâ subplanulatâ: anfr.  $3\frac{1}{2}$ , ad summam partem planulatis, suturâ profundâ: aperturâ orbiculari: labro subincrassato, a carinis subpectinato: umbilico lato, profundo. Div.  $175^{\circ}$ ; lat. max.  $1'''$ .57; lat. min.  $1'''$ .28; alt.  $0'''$ .77.

VITRINELLA EXIGUA. V. t. subdiscoideâ: albâ: carinis spiralibus, 3, unâ superiore ad anfr. ultimi peripheriam, unâ inferiore umbilicum continente; transversè substriatâ: apice obtusâ: spirâ convexâ, haud multum elevatâ: anfr. 3, ad summam partem subangulatis, suturâ impressâ; anfr. ultimo prope peripheriam utrinque concavo: aperturâ orbiculari: labro subincrassato, a carinis subpectinato: umbilico angusto, profundo. Div.  $170^{\circ}$ ; lat. max.  $1'''$ .14; lat. min.  $0'''$ .9; alt.  $0'''$ .53.

VITRINELLA JANUS. V. t. subdiscoideâ: albâ: carinis spiralibus, 4, acutis, angustis; infrâ exilè spiraliter striatâ; aliunde transversè striatâ; striis a carinis interruptis: apice prominente: spirâ haud multum

elevatâ : anfr.  $3\frac{1}{2}$ , suturâ conspicuâ : aperturâ orbiculari : labro subincrassato, a carinis pectinato : umbilico profundo. Div.  $160^\circ$  ; lat. max.  $1'''.7$  ; lat. min.  $1'''.5$  ; alt.  $0'''.76$ .

VITRINELLA MINUTA. V. t. discoideâ : sordidè albâ, nitidâ : exilissimè transversè striatâ : apice obtusâ : spirâ parùm elevatâ : anfr. 3, ad summam partem depressis, suturâ impressâ ; anfr. ultimo perdepresso, subangulato : aperturâ magnâ, orbiculari : labro haud multùm incrassato : umbilico subprofundo, partim oblecto. Div.  $170^\circ$  ; lat. max.  $1'''.01$  ; lat. min.  $0'''.9$  ; alt.  $0'''.43$ .

VITRINELLA MODESTA. V. t. discoideâ : sordidè albâ, diaphanâ : lineâ elevatâ spirali, infrasuturali, et carinâ umbilicum continente, et striis nonnullis exilissimis ad anfr. ultimi peripheriam,—instructâ : apice haud prominente : spirâ convexâ, haud multùm elevatâ : anfr.  $3\frac{1}{2}$ , suturâ conspicuâ : aperturâ orbiculari : umbilico profundo. Div.  $170^\circ$  : lat. max.  $1'''.52$  ; lat. min.  $1'''.27$  ; alt.  $0'''.7$ .

VITRINELLA PANAMENSIS. V. t. subdiscoideâ : albâ : carinis spirilibus, 3, superiore robustâ, inferiore plerumque parvâ, umbilicum continente ; costis arcuatis, subdistantibus : apice obtusâ : spirâ convexâ, haud multùm elevatâ : anfr. 3, suturâ conspicuâ : aperturâ orbiculari : labro subincrassato, a carinis subpectinato : umbilico angusto, profundo. Div.  $160^\circ$  ; lat. max.  $1'''.78$  ; lat. min.  $1'''.52$  ; alt.  $1'''$ .

VITRINELLA PARVA. V. t. subdiscoideâ : albâ : costis robustis pluribus firmatâ ; carinis spirilibus prope anfr. ultimi peripheriam, utrinque unâ : apice perobtusâ : spirâ convexâ, vix elevatâ : anfr.  $3\frac{1}{2}$ , ad summam partem angulatis, suturâ haud multùm impressâ ; anfr. ultimo maximo : aperturâ orbiculari : labro haud multùm incrassato : umbilico angusto, profundo. Div.  $160^\circ$  ; lat. max.  $1'''.18$  ; lat. min.  $1'''$  ; alt.  $0'''.65$ .

VITRINELLA PERPARVA. V. t. subdiscoideâ : albâ : carinis spirilibus, prope anfr. ultimi peripheriam utrinque unâ magnâ acutâ, alterâ umbilicum continente minore ; transversè rugosâ : apice obtusâ : spirâ planâ : anfr. 3, subconvexis, suturâ conspicuâ ; anfr. ultimo maximo : aperturâ orbiculari : labro haud multùm incrassato : umbilico profundo. Div.  $180^\circ$  ; lat. max.  $0'''.94$  ; lat. min.  $0'''.79$  ; alt.  $0'''.38$ .

VITRINELLA REGULARIS. V. t. subdiscoideâ : albidâ, margaritaceâ : lævi, nitidâ ; striâ infrasuturali unâ impressâ : apice subacutâ : spirâ convexâ, suturâ conspicuâ : aperturâ suborbiculari : labro tenui : regione umbilicari profundè indentatâ. Div.  $120^\circ$  ; lat. max.  $1'''.78$  ; lat. min.  $1'''.52$  ; alt.  $1'''.27$ .

VITRINELLA SEMINUDA. V. t. discoideâ : albâ : suprâ exilissimè transversè striatâ : infrâ spiraliter striatâ : apice obtusâ : spirâ convexâ, vix elevatâ : anfr. 3, subconvexis, suturâ conspicuâ ; anfr. ultimo subangulato : aperturâ orbiculari : labro tenui : umbilico angusto, profundo. Div.  $170^\circ$  ; lat. max.  $1'''.57$  ; lat. min.  $1'''.25$  ; alt.  $0'''.81$ .

VITRINELLA TRICARINATA. V. t. subdiscoideâ : albâ : carinis spirilibus, 3 ; striis transversis, nonnullis, irregularibus ; umbilico spiraliter striato : apice subacutâ : spirâ convexâ, haud multùm elevatâ : anfr. 3, depressis, suturâ conspicuâ : aperturâ orbiculari, a carinis pectinato :

umbilico lato, profundo. Div.  $150^{\circ}$ ; lat. max.  $1'''.83$ ; lat. min.  $1'''.65$ ; alt.  $0'''.89$ .

VITRINELLA VALVATOIDES. V. t. discoideâ: albidâ, diaphanâ: carinis spiralibus, 3, inferiore umbilicum continente minore: spirâ concavâ: anfr. 3, ad summam partem concavis, suturâ conspicuâ; anfr. ultimo subangulato: umbilico lato, profundo. Lat. max.  $2'''.54$ ; lat. min.  $1'''.91$ ; alt.  $1'''$ .

TROCHUS CORONULATUS. T. t. conicâ, haud multum elevatâ, crassâ: albidâ, flammulis latis obliquis rubro-fuscis ornatâ, ad nodulos rubellâ: lineis spiralibus elevatis exilè undulatis; infrâ, lineis 4 vel 5 majoribus; carinis spiralibus nodulosis ad anfr. ultimi peripheriam, et nodulis majoribus infrâ suturam instructâ: apice subacutâ: anfr. 6, planulatis; suturâ valdè canaliculatâ: aperturâ suborbiculari: columellâ bidentatâ: umbilico magno, profundo. Div.  $90^{\circ}$ ; long.  $14'''$ ; lat. max.  $18'''.2$ ; lat. min.  $15'''.2$ .

TROCHUS LEANUS. T. t. conicâ, procerâ: fuscâ pallidâ, rubro vel flavido tinctâ; flammulis obliquis latis atro-fuscis ornatâ; infrâ lineis rubro et flavo-albo articulatis, concentricis pictâ: lineis spiralibus elevatis granulosis: apice acutâ: anfr. 9, suprâ perconvexis, infrâ planulatis vel concavis: aperturâ subquadratâ: labro tenui: columellâ subrectâ: umbilico nullo. Div.  $60^{\circ}$ ; long.  $12'''.2$ ; lat. max.  $11'''.2$ ; lat. min.  $10'''.2$ .

TURBO (!) PHASIANELLA. T. t. ovato-conoideâ: colore variâ, plerumque rubrâ vel fuscâ, interdum unicolore, plerumque flammulatâ, interdum fasciatâ vel seriatim maculatâ: striis profundis, spiralibus, creberrimis: apice subacutâ: spirâ conoideâ: anfr. 5, convexis, suturâ conspicuâ: aperturâ latâ, ovatâ, subeffusâ: labro tenui: umbilico minimo. Div.  $64^{\circ}$ ; long.  $4'''.1$ ; lat.  $2'''.4$ ; spiræ long.  $2'''$ .

TURBO RUTILUS. T. t. trochiformi, elevatâ: rutilâ, pallidè transversè strigatâ: spiræ rugis plurimis parvis obliquis subnodulosis, a sulcis parvis spiralibus intersectis; infrâ, sulcis angustis profundis concentricis 6 vel 8: spirâ subconoideâ: anfractibus planulatis; suturâ conspicuâ: anfr. ultimo angulato, anteriùs subplanulato: labio expanso, appresso, calloso: umbilico nullo. Div.  $70^{\circ}$ ; long.  $63'''.5$ ; lat. max.  $76'''.2$ ; lat. min.  $68'''.6$ .

EULIMA IOTA. E. t. subulatâ: lævi, nitente: lineâ microscopica impressâ; supra lineam lacteâ, infra lineam diaphanâ: apice subacutâ: spirâ valdè arcuatâ: anfr. 10, subconvexis, suturâ conspicuâ: aperturâ parvâ, ovatâ, subeffusâ: labro ad medium partem porrecto. Div.  $20^{\circ}$ ; long.  $2'''$ ; lat.  $0'''.76$ ; spiræ long.  $1'''.5$ .

EULIMA RECTA. E. t. elongatâ, ovato-conicâ: albidâ, fasciâ unâ opacâ et alterâ diaphanâ infrasuturalibus—ornatâ; ad labrum et ad gradus ætatis fusco exilè bimaculatâ: lævi, nitente, striis nonnullis gradus ætatis monstrantibus: apice acutissimâ: spirâ rectâ, conicâ: anfr. 11, subplanulatis, suturâ inconspicuâ; anfr. ultimo elongato: aperturâ angustâ, suprâ acutissimâ: labro acuto: columellâ robustâ, subrectâ. Div.  $21^{\circ}$ ; long.  $10'''.3$ ; lat.  $2'''.54$ ; spiræ long.  $7'''.24$ .

**EULIMA SOLITARIA.** E. t. elongatâ, ovato-conicâ : albidâ, suprâ fusco tinctâ : lævi, nitente : apice acutâ : spirâ haud multum arcuatâ, subconicâ : anfr. 11, planulatis, suturâ inconspicuâ : aperturâ ovatâ, suprâ acutâ : labro acuto, ad mediam partem producto : columellâ robustâ, subarcuatâ. Div.  $23^{\circ}$  ; long.  $4'''$ .8 ; lat.  $1'''$ .4 ; spiræ long.  $3'''$ .56. An Stylifer ?

**PYRAMIDELLA CONICA.** P. t. elongatâ, conicâ : suprâ albidâ, infrâ fuscâ, lineâ pallidâ suprasuturali : lævi, nitidâ : apice acutissimâ : spirâ conicâ : anfr. 14, planulatis, suturâ angustè canaliculatâ ; anfr. ultimo angulato : aperturâ obliquâ : labro tenui : columellâ triplicatâ ; plicâ unâ lamelliformi, plicis duobus parvis. Div.  $23^{\circ}$  ; long.  $14'''$ .5 ; lat.  $4'''$ .45 ; spiræ long.  $9'''$ .65.

**PEDIPES ANGULATA.** P. t. ovato-globosâ : fusco-rubrà, aperturâ albâ : crassâ, lineis elevatis spiralibus rugosis creberrimis inequalibus, ad summum anfr. exilioribus : apice subacutâ : spirâ conoideâ : anfr. 4, angulatis, ad summam partem concavis, ad suturam imbricatis ; anfr. ultimo magno, ventricosio, subangulato : aperturâ subellipticâ : labro acutissimo, suprâ subsinuato, intus crassissimo, callo ad anfr. angulum interrupto, infrâ angulum in dentem longè producto : columellâ crassâ, planâ, bicipitatâ : plicis transversis, inferiore minore : labio plicâ spirali lamelliformi maximâ instructo : umbilico nullo. Div.  $90^{\circ}$  ; long.  $6'''$ .35 ; lat.  $4'''$ .8 ; spiræ long.  $2'''$ .5.

**AURICULA CONCINNA.** A. t. ellipsoideâ : atro-fuscâ, ad anfr. ultimi peripheriam pallidâ et infrâ lineâ pallidè flavâ ornatâ ; plicis et callo albis : lævi, nitidâ : apice acutâ : spirâ conoideâ ; anfr. 5, convexis, imbricatis, suturâ parùm impressâ : aperturâ angustâ, suprâ acutissimâ, a plicis contractâ : labro acuto, intus a callo crasso firmato : plicis 3, inferiore perobliquâ, superiore maximâ, infrâ concavâ, suprâ dilatatâ et rugosâ. Div.  $80^{\circ}$  ; long.  $8'''$ .1 ; lat.  $5'''$ .1 ; spiræ long.  $2'''$ .3.

**AURICULA INFREQUENS.** A. t. ellipsoideâ : fuscâ, fasciâ pallidâ infrasuturali : striis transversis exilibus : apice acutâ : spirâ subconoideâ : anfr. 6, ad summam partem subangulatis, suturâ profundâ ; anfr. ultimo compresso : aperturâ subellipticâ : labro tenuissimo : plicis duobus, unâ inferiore obliquâ, alterâ transversâ. Div.  $80^{\circ}$  ; long.  $5'''$ .8 ; lat.  $3'''$ .8 ; spiræ long.  $2'''$ .5.

**AURICULA PANAMENSIS.** A. t. elongatâ, ovatâ : atro-rubrà, plicis internis albis : lævi, nitidâ, striis spiralibus prope apicem insculptâ : apice acutâ : spirâ suprâ conoideâ, infrâ subcylindraceâ : anfr. 8, convexis, imbricatis : aperturâ subelongatâ, acutâ : labro intus inerui vel uniplicato : labio triplicato. Div.  $50^{\circ}$  ; long.  $11'''$ .1 ; lat.  $4'''$ .3 ; spiræ long.  $5'''$ .8 ; testæ alterius,  $65^{\circ}$  ;  $9'''$ .3 ;  $5'''$ .1 ;  $3'''$ .3.

**AURICULA TABOGENSIS.** A. t. obovatâ : aterrimè fusco-rubrà, columellâ rufâ, plicis et callo albis : lævi, nitidâ, suprâ exilè spiraliter striatâ : apice acutâ : spirâ conoideâ : anfr. 10, imbricatis, suturâ conspicuâ ; anfr. ultimo maximo : aperturâ prælongâ, angustâ, callo ad dextram partem transversè rugoso : plicis 3, ad sinistram partem, superiore haud

multum majore, duobus alteris a sinu disjunctis. Div.  $100^{\circ}$ ; long.  $15'''$ ; lat.  $9'''$ .1; spiræ long.  $3'''$ .8.

AURICULA TRILINEATA. A. t. obovatâ: fusco-rubrà, lineis albis tribus spiralibus ornatâ; columellâ rufâ: striis transversis inequalibus: spirâ minimâ, conoideâ: anfr. angustis, imbricatis, suturâ conspicuâ; anfr. ultimo maximo: aperturâ prælongâ, angustâ: labro intus calloso et transversè plicato: infrâ ad columellam plicâ unâ tortâ, suprâ hanc alterâ transversâ magnâ (his a sinu disjunctis), suprâ 4 parvis transversis approximatis. Div.  $135^{\circ}$ ; long.  $18'''$ : lat.  $10'''$ .9; spiræ long.  $1'''$ .3.

TRUNCATELLA BAIRDIANA. A. t. cylindraceâ: succineâ, aurantiâ: costis parvis creberrimis, post labrum obsoletis, ad anfr. penultimum 24: apice acutâ, truncatâ, anfr. 4 deperditis: spirâ subconoideâ: anfr. reliquis 4, convexis, suturâ impressâ: aperturâ ovatâ, suprâ haud multum effusâ: labro reflexo, duplici: labio calloso. Div. ad med.  $22^{\circ}$ ; long. (testæ truncatæ)  $5'''$ .3; lat.  $1'''$ .9; spiræ long.  $3'''$ .8.

TRUNCATELLA (ff) DUBIOSA. T. t. ovato-conicâ: diaphanâ, flavo-fuscâ: tenui, lævi, nitente: apice subacutâ: spirâ subconoideâ: anfr. 6, convexis, suturâ impressâ; anfr. ultimo brevi, ventricosò: aperturâ latâ, ovatâ: labro tenui: labio infrâ subreflexo. Div.  $45^{\circ}$ ; long.  $2'''$ .8; lat.  $1'''$ .4; spiræ long.  $1'''$ .14.

BULLA INFREQUENS. B. t. cylindraceâ: albâ: lævi: apice minutissimâ, prominente, papillari: spirâ elevatâ, convexâ: anfr.  $4\frac{1}{2}$ , ad summam partem acutè angulatis, suturâ canaliculatâ: aperturâ prælongâ, angustâ; labro tenuissimo: columellâ in plicam spiralem robustam desinente. Div.  $130^{\circ}$ ; long.  $7'''$ .1; lat.  $2'''$ .8; spiræ long.  $0'''$ .76.

BULLA LUTICOLA. B. t. subcylindraceâ, infrâ latiore: diaphanâ, pallidè corneâ: striis transversis exilissimis: spirâ umbilicatâ, a labro partim tectâ: anfr. ultimo constricto: aperturâ suprâ spiram productâ, suprâ lineari, infrâ suborbiculari: labro tenuissimo: columellâ callosâ: infrâ regione umbilicari indentatâ. Long.  $5'''$ .1; lat.  $2'''$ .4.

STOMATELLA INFLATA. S. t. obliquè ellipticâ: albâ, infrâ crassâ et opacâ, suprâ tenui et diaphanâ: striis transversis inequalibus exilissimis; striis spiralibus nullis: apice minimâ, obtusâ, prominente: anfr. 2, perconvexis, suturâ impressâ; anfr. ultimo ventricosò: aperturâ contractâ, columellam usque ad apicem monstrante: labio profundè arcuato. Long. (obliquè)  $11'''$ .4; lat.  $7'''$ .9.

CALYPTRÆA ABERRANS. C. t. subconçavâ: papyratiâ, margaritaceâ: striis transversis exilibus inequalibus: apice minimâ, subterminali: cyathò tenuissimo, angustò, concavò, transversò, sub apice. Long.  $17'''$ .8; lat.  $15'''$ .6.

CALYPTRÆA (SYNPHOPATELLA) ASPERSA. C. t. conicâ: tenui: sordidè vel subfusco-albidâ, maculis pluribus rubro-fuscis irregulariter aspersâ: rugis brevissimis minimis inequalibus minimè elevatis: apice acutâ, centrali: laminâ replicatâ,—plicâ ad latus interius appressâ et tubum formante,—latâ, per  $240^{\circ}$  revolvente: limbo tenuissimo, acuto. Diam.  $14'''$ ; alt.  $5'''$ .23.

*CALYPTRÆA PLANULATA*. C. t. planâ, suborbiculari: tenui: niveâ: striis radiantibus, exilissimis, prope apicem obsoletis: apice subcentrali, acutâ, haud multum elevatâ: cyatho libero, angulis acutis, tenui, per 220° arcuato: limbo tenuissimo. Long. 8'''.1; lat. 8'''.9.

*CALYPTRÆA (SYPHOPATELLA) REGULARIS*. C. t. conicâ: subincrassatâ: niveâ, prope apicem subfusco tinctâ: striis concentricis, exilissimis, leviter impressis; nitidâ: apice subacutâ, subcentrali: laminâ replicatâ, tubum parvum formante, per anfr. unum volvente, ad limbum productâ: limbo acuto. Diam. 32'''.2; ult. 14'''.

*CREPIDULA CERITHICOLA*. C. t. ovatâ, convexâ: postea albidâ, radiis duobus latis fusco-rubris; antè diaphanâ, pallidè fusco-rubrà, fusco-rubro radiatâ; interdum subunicolore; septo albo: laevi: apice acutâ, terminali: septo ad sinistram partem angustè sinuato, ad mediam latè sinuato, ad dextram haud sinuato. Long. 5''''.84; lat. 3''''.56; sin. 1''''.78.

*CREPIDULA NIVEA*. C. t. ovato-ellipticâ: subincrassatâ: intus niveâ, extus sordidè albâ: irregulariter concentricè plus minusve rugosâ, concentricè conspicuè striatâ: apice dextrorsum deflectâ, subprominente, marginali: septo longitudinaliter subangulato, ad sinistram profundè et ad dextrum haud profundè sinuato: limbo crasso, crebrè striato. Long. 35''''.5; lat. 25.4; alt. 10''''.1.

*CREPIDULA OSCULANS*. C. t. ellipticâ: tenui: pallidè corneâ, diaphanâ: rugis minimis concentricis et radiatis decussatâ; apice subterminali, multum prominentè, haud marginali; nucleo nitente, transparente, dextrorsum vix deflecto: septo juxta limbum affixo, minimo, lineæ curvatæ formâ: limbo tenuissimo. Long. 3''''.56; lat. 2''''.55; lat. 1''''.02.

*CREPIDULA ROSTRATA*. C. t. maximè convexâ, subellipticâ: livido-fuscâ: rugis inequalibus haud prominentibus radiatis et concentricis: apice acutissimâ, maximè prominente, rostriformi, a limbo multum disjunctâ, dextrorsum vix deflecto: septo profundè affixo, planulato, plerumque declivi: limbo tenui, contorto. Long. 12''''.2; lat. 7''''.6; alt. 7''''.37.

*FISSURELLA ALTA*. C. t. subconicâ, altâ: sordidè albâ, radiis latis atro-cinereis pictâ: costis radiatis, alternis majoribus; rugis concentricis crebris: apice subantere: fissurâ parvâ, ovato-ellipticâ: limbo pectinato. Long. 10''''.67; lat. 7''''.36; alt. 5''''.6.

*ANOMIA TENUIS*. A. t. orbiculari: planatâ, tenuissimâ: alba, subtransparente, margaritaceâ: cicatrice superiore magnâ, subcirculari, infrà sinuatâ; cicatricibus duobus inferioribus parvis, circularibus, equalibus, approximatis, quarum anterior prope superioris sinum posita est; posterioris vertice parti mediæ anterioris exequante. Diam. 33'''.

*CHAMA BUDDIANA*. C. t. orbiculari vel subtriangulari: extus, et intus ad limbum, purpureo-rubrà, spinis albis: striis radiantibus interruptis; valvâ superiore spinis brevibus crassis triangularibus fornicatis ornatâ; valvâ inferiore quoad  $\frac{3}{4}$  vel  $\frac{2}{3}$  ad rupem affixa, aliter spinis dentiformibus ornatâ; limbis exilè et profundè crenulatis: apicibus submarginalibus. Diam. 76'''.

**ARCA PHOLADIFORMIS.** A. t. pholadiformi, vix hiantē: albidā: exilē clathratā; intersectionibus nodosis, infrā striosis: umbonibus planulatis, posticē valde angulatis; rugis radiantibus ad angulum divaricatis: apicibus parvis: areā ligamenti lineari: limbis exilē cremulatis: dentibus ad mediam seriem obsoletis. Long. 31'''7; alt. 13'''4; lat. 12'''2.

**ARCA SIMILIS.** A. t. subellipticā, inequilaterali, subauriculatā; margine inferiori subrectā: marginibus anticē et posticē rotundatis; margine dorsali vix obliquā: albā: epidermide virescente-fuscā in ætate juniore, nigro-fuscā in ætate adultā: costis 40—44, posterioribus majoribus et acutē angulatis: umbonibus prominentibus, planulatis, haud angulatis: areā ligamenti angustā, depressā; marginibus intus a costis pectinatis; dentibus parvis. *A. tuberosa* Sowb. similis. Long. 55'''9; alt. 33'''3; lat. 27'''9.

**ARCA TABOGENSIS.** A. t. subelongatā, subinequilaterali: margine inferiori haud multum hiantē, subrectā; margine posteriori subrectā, obliquā; margine anteriori rotundatā: albidā; epidermide atro-fuscā: costis radiantibus plurimis, perangustis, inequalibus; rugis concentricis obsoletis: umbonibus planulatis, areā ligamenti angustā, anteriùs latiore: limbis exilē et inequaliter crenulatis: dentibus ad mediam seriem parvis: epidermide subpilosā vel lamellosā. Long. 38'''3; alt. 21'''6; lat. 16'''5.

**CYTHEREA CONSANGUINEA.** C. t. obovatā, subcordatā, infrā rotundatā: pallidē straminea, radiis flavo-fuscis, angustis, irregulariter interruptis, ad marginem haud productis: lævi, nitidā: apicibus approximatis, prominentibus: areā posteriori distinctā, elongatā, striatā: lunulā cordiformi, striatā: limbis haud crenulatis. Long. 31'''7; alt. 25'''4; lat. 17'''3.

**GOULDIA PACIFICA.** G. t. subtriangulari, infrā rotundatā: variē coloratā, albidā, vel pallidē fuscā, apicibus plurium rubro tinctis; fusco interdum radiatim vel rariùs concentricē lineatā: rugis concentricis crassis 8 usque ad 12; interdum radiatim striatā: apicibus acutissimis perapproximatis: lunulā distinctā: limbis haud crenulatis. Long. 5'''6; alt. 4'''8; lat. 2'''3.

**CYRENA MARITIMA.** C. t. subtriangulari, infrā rotundatā, ventricosā, subtenui: albidā, posticē violaceā: epidermide olivaceā, asperē concentricē striatā: umbonibus inflatis, posteriùs biangulatis, angulo tertio intermedio obsoleto: lunulā latā, profundā: ligamento magno: limbis tenuibus: dentibus omnibus magnis. Long. 68'''6; alt. 57'''1; lat. 49'''6.

**DONAX ROSTRATUS.** D. t. elongatā, inequilaterali, anticē rostratā, supra carinam concavā: margine ventrali ad mediam rotundatā, antice rectā: margine anteriori perobliquā, subrectā: purpureo et sordido flavo zonatā: suprā et posteriùs lævi nitidā; ad mediam striis exilibus distantibus radiatā; anteriùs profundius et crebriùs striatā: apicibus parvis, prominulis: umbonibus anticē acutē carinatis: limbis anteriùs et infrā crenulatis: dentibus lateralibus utrinque magnis. Long. 40'''6; alt. 29'''2; lat. 20'''2.

**TELLINA COGNATA.** T. t. subellipticā, solidā, convexā, subequilateralī;

margine ventrali subrotundatâ; margine anteriore latè rotundatâ; margine dorsali anticè subrectâ, declivi, posticè subconcavâ, declivi; parte posticâ obliquè et latè truncatâ: flexurâ parvâ: albâ, rubro vel fusco tinctâ: striis exilissimis inequalibus radiatâ; striis exilibus sub-obliquis crebris, posticè deficientibus; ligamento brevi, conspicuâ: dentibus lateralibus obsoletis. Long. 44'''5; alt. 31'''2; lat. 12'''7.

TELLINA CONCINNA. T. t. subellipticâ, tenui, convexâ, parte anticâ vix majore; margine ventrali subrotundatâ; margine anticâ latè rotundatâ; margine dorsali anteriùs vix excurvatâ, haud multùm declivi, posterius subrectâ, paululum declivi; parte posticâ subobliquè latius truncatâ: flexurâ parvâ: nitidâ, niveâ, ad mediam partem rubellâ: striis concentricis inequalibus exilibus, posticis majoribus; striis radiantibus inequalibus exilissimis: ligamento brevi, conspicuo: dentibus lateralibus obsoletis. Long. 40'''6; alt. 25''' ; lat. 12'''.

TELLINA PUELLA. T. t. elongatâ, subsolidâ, convexâ, subinequilaterali; margine ventrali vix excurvatâ, posticè rectâ; margine anticâ latè rotundatâ; margine dorsali anticè vix excurvatâ, posticè rectâ, perdeclivi; parte posticâ acuminatâ: flexurâ parvâ: albâ, prope marginem rubro tinctâ: nitidâ; striis concentricis exilissimis; striis radiantibus microscopicis: ligamento parvo: dentibus lateralibus conspicuis. Long. 22'''8; alt. 12'''4; lat. 7'''1.

TELLINA SILIQUA. T. t. elongatâ, subellipticâ, tenuissimâ, inflatâ, perinequilaterali; margine ventrali subrectâ; margine anticâ rotundatâ; margine dorsali anticè vix excurvatâ, subdeclivi, posticè rectâ vel concavâ, declivi; parte posticâ angustè subtruncatâ: flexurâ magnâ: niveâ: striis concentricis exilissimis: apicibus acutis: ligamento parvo: dentibus cardinalibus parvis, lateralibus obsoletis. Long. 17'''8; alt. 10'''1; lat. 7'''6.

TELLINA SIMULANS. T. t. subovatâ, solidâ, subconvexâ, subinequilaterali; margine ventrali vix excurvatâ: margine anticâ rotundatâ; margine dorsali anticè vix excurvatâ, posticè subrectâ, declivi; parte posticâ obliquè truncatâ: flexurâ parvâ: albâ, ad mediam partem roseo tinctâ: nitidâ: sulcis concentricis crebris, regularibus, profundis, anticè et posticè æqualibus: ligamento brevi, conspicuo: areâ dorsali posticâ ab angulo umbonali finitâ: dentibus lateralibus subobsoletis. Long. 28'''7; alt. 17'''8; lat. 7'''6.

TELLINA VICINA. T. t. brevissimâ, subovatâ, solidâ, convexâ, subequilaterali; margine ventrali rotundatâ, interdum prope flexuram subincurvatâ; margine anticâ latè rotundatâ; margine dorsali subrectâ, utrinque declivi; parte posticâ subtruncatâ: flexurâ parvâ: albidâ, interdum flavo tinctâ; interdum rubrâ, cœruleo tinctâ, vel canescente; interdum albidâ, lineis purpureis angulatis ad umbones—vel radio antico purpureo—ornatâ: striis profundis concentricis crebris inequalibus: ligamento brevi, conspicuo: dentibus lateralibus parvis. Long. 24'''1; alt. 19'''8; lat. 10'''1.

PETRICOLA COGNATA. P. t. pholadiformi: albidâ; areâ superâ posticâ



striis exilibus æqualibus crebris radiatâ; areâ inferâ posticâ lineis elevatis exilibus inequalibus radiatâ; parte dimidiâ anticâ costis—a squamis fornicatis crassis parvis instructis—radiatâ: umbonibus subplanulatis; limbo ventrali anticè pectinato. Long. 23'''4; alt. 10'''7; lat. 11'''2.

**AMPHIDESMA BICOLOR.** A. t. ellipticâ, vix flexuosâ, inequilaterali, posticè majori; margine dorsali posticè subconcovâ; marginibus alteris rotundatis: albidâ, prope apices purpureâ; intus areâ purpureâ majori: prope apices lævi aliunde lineis exilibus concentricis et striis radiantibus crebris exilissimis—posticè microscopicis, divaricatis—ornatâ: apicibus parvis, prominentibus: umbonibus convexis. Long. 21'''6; alt. 18'''8; lat. 10'''7.

**AMPHIDESMA PROXIMUM.** A. t. suborbiculari, subflexuosâ, subinequilaterali; margine dorsali anticè concavâ, posticè subexcurvatâ; parte posticâ subtruncatâ; marginibus aliunde rotundatis: niveâ: epidermide tenui, lutescente vel atro-fuscâ: parte mediâ et posticâ lineis elevatis subdistantibus exilibus ornatâ; striis exilissimis radiatâ: apicibus parvis approximatis: umbone sinistrâ quàm dextrâ convexiore: lunulâ et pube angustis, concavis. Long. 45'''8; alt. 40'''1; lat. 20'''8.

**AMPHIDESMA STRIOSUM.** A. t. ellipticâ, subflexuosâ, inequilaterali; margine dorsali posticè subexcurvatâ, anticè concavâ; marginibus alteris rotundatis: pallidè flavâ: lineis elevatis concentricis exilibus crebris et striis radiantibus creberrimis exilissimis: apicibus parvis approximatis: umbonibus convexis. Long. 20'''1; alt. 18'''; lat. 8'''4.

**AMPHIDESMA TORTUOSUM.** A. t. compressâ, subequilaterali, suprâ angulari, infrâ rotundatâ; margine dorsali posticè vix excurvatâ, anticè vix concavâ; angulum circa 125° continenti; marginibus alteris rotundatis: flexurâ magnâ: albidâ: rugis concentricis crebris, a striis radiantibus exilissimis trajectis: apicibus minimis, approximatis: umbone sinistro planato, dextro convexo: lunulâ et pube angustis, profundis. Long. 31'''7; alt. 28'''; lat. 8'''9.

**AMPHIDESMA VENTRICOSUM.** A. t. suborbiculari, subequilaterali, ventricosâ, flexuosâ; margine dorsali utrinque subrectâ; marginibus alteris rotundatis: albidâ, pallido fusco zonatâ: striis concentricis inequalibus; striis radiantibus exilissimis creberrimis: apicibus parvis, approximatis: umbonibus perconvexis. Long. 17'''8; alt. 15'''7; lat. 9'''1.

**ANATINA ALTA.** A. t. ovatâ, brevi; anticè subangulatâ et flexuosâ; marginibus aliunde rotundatis: albidâ, margaritaceâ: epidermide tenui, fusco-lutescente: exilissimè sagrinatâ: apicibus parvis, prominentibus, approximatis: umbonibus subconvexis: intus post dentem cochleariformem profundè sinuatâ. Long. 50'''4; alt. 34'''3; lat. 17'''8.

**PANDORA CORNUTA.** P. t. elongatâ, ovatâ, perinequilaterali; parte posticâ longiore et alteriore; margine dorsali subrectâ; posticè rostratâ; margine posticâ suprâ profundè excavatâ; margine ventrali rotundatâ: albidâ, margaritaceâ: umbone dextro posticè angulato: apicibus inconspicuis: umbonibus subæqualiter subconvexis. Long. 15'''2; alt. 10'''7; lat. 2'''8.

**POTAMOMYA ÆQUALIS.** P. t. subovatâ, subequilaterali, subinequivalvi;

marginē posticā subangulatā; marginibus alteris rotundatis: albā: epidermide pallido fusco: angulo umbonali posticā haud prominente; umbone dextro inflato: apicibus parvis: dentibus parvulis: dente sinistrā ad mediam carinatā. Long. 19'''8; alt. 16'''8; lat. 10'''7.

POTAMOMYIA INFLATA. P. t. ovatā, ventricosā, inequilaterali, subinequivalvi, posticē inter angulos duos umbonales subtruncatā; marginē ventrali haud multūm excurvatā; marginē anticā rotundatā: albā: epidermide fusco-lutescente: apicibus parvis: umbonibus inflatis: dentibus parvis: dente sinistrā ad mediam carinatā. Long. 17'''8; alt. 14'''5; lat. 8'''4.

POTAMOMYIA TRIGONALIS. P. t. solidā, triangulari, subinequivalvi, subequilaterali; marginē dorsali posticē subexcurvatā; anticē angulatā; posticē rotundatā; infrā subrectā: albā: epidermide fusco lutescente: angulo umbonali postico acuto: apicibus magnis, prominentibus: dentibus robustis; dente sinistrā ad mediam carinatā. Long. 24'''1; alt. 20'''3; lat. 14'''2.

CORBULA RUBRA. C. t. subovatā, subinequivalvi, subinequilaterali, posticē acuminatā, infrā arcuatā, anticē rotundatā: rufā, anticē radio brevi albo, anteriūs maculā atro-rubrā—ornatā: striis concentricis exilibus; striis radiantibus exilissimis: umbonibus inflatis: dentibus parvis. Long. 7'''9; alt. 4'''8; lat. 3'''5.

SOLECURTUS AFFINIS. S. t. elongatā, subcylindricā, utrinque rotundatā: albā: epidermide stramineā: apicibus subposticis: ligamento lato: nymphis callosis: dentibus parvis; sinistrā unā; dextris duobus. Long. 57'''; alt. 20'''3; lat. 14'''.

SOLEN RUDIS. S. t. solidā, rectā vel subrectā; posticē truncatā; anticē rotundatā; limbis anticis crassissimis: albā: epidermide fusco lutescente, crassā, deciduā, trans margines productā; striis exilissimis nonnullis radiatā: apicibus ab extremitatem anticā ½ longitudinis totius distantibus: ligamento magno: nymphis callosis: dentibus in testis senioribus magnis. Long. 147'''; alt. 33'''; lat. 25'''4.

## CONCLUDING REMARKS.

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THE reader of the Introduction to this paper, and of Dr. Gould's Introduction to his great work on the Shells of the United States' Exploring Expedition, may be struck with the coincidence of opinions relating to the geographical distribution of species, and to errors in the statement of their habitats and distinctive characters. The coincidence is so exact, that it might naturally be supposed that these opinions originated in a single source. Such was their origin; but that source was the book of nature. It was not until after both Introductions had been written, that opportunities occurred for a free interchange of views with Dr. Gould. It is therefore with the liveliest satisfaction that we derive assurance of their correctness, both from the extent and accuracy of Dr. Gould's knowledge and also from the coincidence of the results of independent investigations.

To avoid delay, it has been necessary to work off the sheets of this article without revision by the author: hence some errors have since been detected, and if many more should not be discovered by others, we shall be agreeably disappointed. We have, however, some confidence that they will not exceed in magnitude those which we have endeavored to eliminate from Conchological literature. All are liable to error: but it may be reasonably expected, that, as in Astronomy rude approximations have been repeatedly corrected with successive advances towards absolute accuracy, so in Zoology the errors respecting geographical distribution and the characters of species will be gradually eliminated. A real advance towards accuracy, however small, will be an ample reward for a labor which has been performed *con amore*.



# I N D E X.

[The names of new species, or concerning which new information is given, are printed in Roman letter: synonyms and species to which only incidental reference is made, are in *Italics*; and names of families or higher divisions in SMALL CAPITALS.]

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Drawn on Stone by H. Henbly

Male in Summer

Female in Winter







Engraved on Stone by H. Trimbur

*Melanerpes melanopterus*. — Lawson

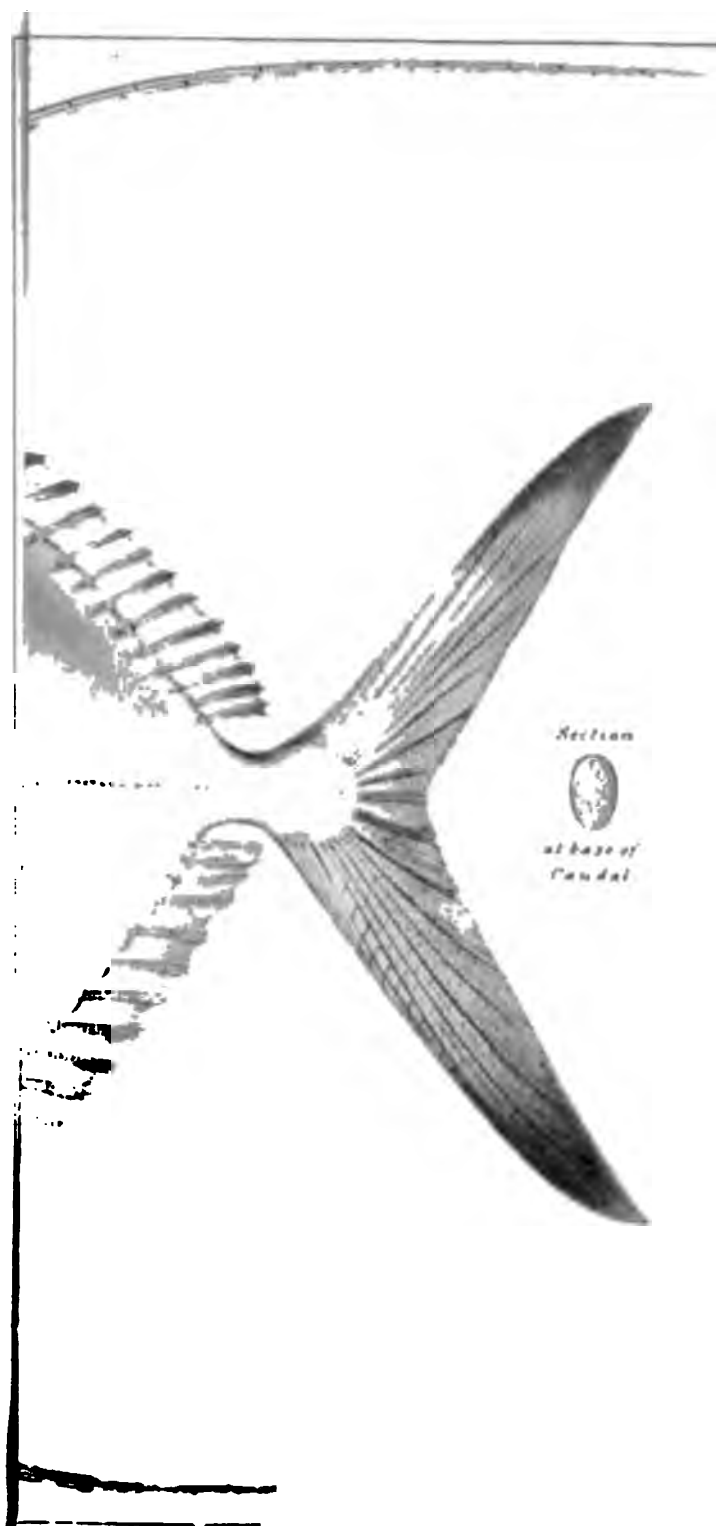




Drawn on Stone by R. H. Pembler

*Helinaia brevipennis*. Giraud. Ac. Nat. Hist. Mex. 1862. Pl. 1. Fig. 1.





*Section*

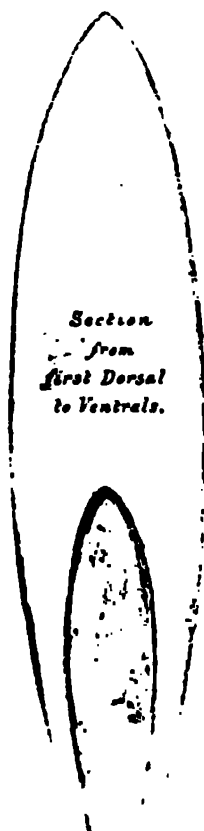


*at base of  
Caudal*





*Scales magnified 32 times.*



*Section  
from  
first Dorsal  
to Ventrals.*



aspersus

magnified ten times

congestum

*Cyclus aspersus*

*Pisidium congestum*

*Sylviola Nuttallii* Baird











adult

magnified ten times

adult

*Cyclus encurs*

*Pseudum corpeum*

*Sylviola Rutlandii* Baird



